UAH Research Report No. 173

Final Report

Contract No. NAS8-30772

ENVIRONMENTAL PARAMETERS OF THE TENNESSEE RIVER IN ALABAMA:

II. PHYSICAL, CHEMICAL, AND BIOLOGICAL PARAMETERS

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by
Lorraine M. Rosing

Submitted to

National Aeronautics and Space Administration
George C. Marshall Space Flight Center
Marshall Space Flight Center, Alabama

Submitted by

The University of Alabama in Huntsville
School of Graduate Studies and Research

P. O. Box 1247
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SUMMARY

Physical, chemical and biological data from five sites in the Tennessee River, two in Guntersville Reservoir and three in Wheeler Reservoir are correlated with climatological data for three annual cycles. Two of the annual cycles are for the years prior to the Browns Ferry Nuclear Power Plant operations and one is for the first 14 months of Plant operations.

Comparing the results of the annual cycles indicate two distinct physical conditions in the reservoirs, one during the warm months when the reservoirs are at capacity and one during the colder winter months when the reservoirs have been drawn-down for water storage during the rainy months and for weed control. The wide variations of physical and chemical parameters to which the biological organisms are subjected on an annual basis control the biological organisms and their population levels.

Comparison of the parameters of the site below the Power plant indicate that the heated effluent from the plant operating with two of the three reactors has not had any effect on the organisms at this site.

Recommendations include the development of prediction math models for the physical and chemical parameters under specific climatological conditions which affect biological organisms.

Recommendations also include continuing the weekly sampling at the Wheeler and Browns Ferry site to determine the long range effect of the Browns Ferry Nuclear Power Plant.

ACKNOWLEDGMENTS

This project could not have been undertaken without the extensive cooperation of many individuals and agencies. The onset of the task was initiated in June 1971 under research grant RC-NSF-7-71 received from The University of Alabama in Huntsville Research Committee and continued under NSF-7-71 to December 1971. For this initial funding and support I wish to thank all of the Research Committee members and Dr. John Porter, then Dean of the U.A.H. School of Graduate Studies and Research.

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Appreciative thanks are expressed to numerous U.A.H. personnel for their help and support. Among these are Ms. Sylvia Heard, Supervisor of Digital Programming, and Mr. Michael Meyer and Mr. George Jennings, Programmer-Analyst, of the U.A.H. Computer Services Office for their help and ideas in developing the programs to handle and analyze the data.

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TABLE OF CONTENTS

	Page
ACKNOWLEDGEMENTS	ii
TABLE OF CONTENTS	iv
LIST OF FIGURES	vi
LIST OF TABLES	vii
INTRODUCTION	1
SITE SELECTION	2
Site 1 - Whitaker Lake	3
Site 2 - Mirror Lake	6
Site 3 - Whitesburg	6
Site 4 - Decatur Municipal Boat Harbor	8
Site 5 - Douglas Branch or Browns Ferry Site	10
SITE SAMPLES	12
RESULTS AND DISCUSSION	14
Physical Factors	14
Depth	14
Color and Visibility	14
Temperature	16
Chemical Factors	18
Dissolved Oxygen	18
pH	19
Alkalinity, Bicarbonate, Carbonate, Hydroxide and Carbon Dioxide	20
Ammonia, Nitrate, and Nitrite	23
Hardness, Calcium, and Magnesium	24
Total Dissolved Solids	26
Chlorine	27
Chlorides	27
Iron	29
Chromium and Copper	29
Phosphates, Total, Ortho, and Meta	31
Silica	33
Salinity	34
Sulfide and Sulfate	34
Biological Factors	35
Planktonic Organisms	35
Nektonic Organisms	37
Benthic Organisms	38
Tropic Levels of Organisms	39

TABLE OF CONTENTS (Continued)

	Page
CONCLUSIONS AND RECOMMENDATIONS	40
APPENDIXES	41
APPENDIX A.	42
Main Computer Program and Subroutines for Generating Physical and Chemical Parameter Statistics	42
APPENDIX B.	54
Weekly Physical and Chemical Data and Figures.	55
APPENDIX C.	259
Biological Listings.	265
REFERENCES	275

LIST OF FIGURES

Figure		Page
1.	Reference Locations of Sampling Sites in Guntersville and Wheeler Reservoirs	2
2.	Map Reference Location to Sites 1 and 2 and Mile 350 of the Tennessee River in Alabama	3
3.	Aerial View of Sample Site 1	4
4.	Aerial View of Sampling Site 2	5
5.	Map Reference Location to Site 3 and Mile 334 of the Tennessee River in Alabama	6
6.	Aerial View of Sampling Site 3	7
7.	Map Reference Location to Site 4 and Mile 306 of the Tennessee River in Alabama	8
8.	Aerial View of Sampling Site 3	9
9.	Map Reference Location of Site 5 and Mile 292 of the Tennessee River in Alabama	10
10.	Aerial View of Sampling Site 5	11
11.	Water Analysis Data Form Used to Record Weekly Samples from each Site	13

LIST OF TABLES

Table		Page
1.	Statistical Comparison of the Sites for Visibility Expressed in Meters of Depth	16
2.	Statistical Comparison of the Sites for Temperature in Degrees Fahrenheit and Celcius	17
3.	Statistical Comparison of Dissolved Oxygen in Parts per Million and Percent of Saturation of Sample Sites	19
4.	Statistical Comparison of pH from the Sites	20
5.	Statistical Comparison of Carbon Dioxide, Carbonate, and Bicarbonate of the Sites in Parts per Million	22
6.	Statistical Comparison of the Sites for Hardness, Calcium, and Magnesium in Parts per Million	25
7.	Statistical Comparison of Total Dissolved Solids (Conductivity) in Parts per Million	26
8.	Statistical Comparison of the Sites for Salinity in Parts per Thousand, Chlorides and Chlorine in Parts per Million	28
9.	Statistical Comparison of the Sites for Iron in Parts per Million	29
10.	Statistical Comparison of Chromium and Copper of the Sites in Parts per Million	30
11.	Statistical Comparison of Total Phosphate, Metaphosphate, and Orthophosphate in Parts per Million	32
12.	Statistical Comparison of the Sites for Silica in Parts per Million	33
13.	Organisms Identified from Plankton Samples Obtained from the Five Sites in the Tennessee River	265
14.	Nektonic Organisms Identified from the Five Sites in the Tennessee River	266
15.	Benthic Organisms Identified from the Five Sites in the Tennessee River	267
16.	Trophic Levels of Organisms from the Five Sites in the Tennessee River	273

INTRODUCTION

Multiple re-use of the waters of the Tennessee River by communities along its banks make water quality studies imperative. Although the original role of the TVA system was for flood control and power supply, these have been expanded in recent years to also include potable water supplies, recreation and commercial fishing. The population of Huntsville at the time of the Wheeler Reservoir formation in the early 1940's was around 13,050 individuals. War-time development in the area and post-war industrialization of the area resulted in an increase in the Madison County population being 186,540 in 1970 with 139,282 of these residing in the city of Huntsville. Future development and expansion in the area requires an abundant source of water of a good quality - namely, the Tennessee River.

Both industry and community activities require large volumes of potable water. Water supplied to the community by the utilities company requires the removal of volumes of water from the river and the removal of substances that are in that water before it can be used.

Recreational activities, swimming, fishing, boating, water skiing, etc. are dependent on good water quality for health and esthetic reasons. Commercial fishing, mussel harvesting, etc. are dependent on good water quality for the growth and development of the commercially harvestable organisms as well as that of the organisms involved in their food chains.

Aquatic organisms do not live in pure (distilled) water. Dissolved and suspended substances are required by these organisms to grow and develop. Most of the substances required by the organisms are introduced naturally into the water in the water entering the river from surrounding land areas. Thus, the water quality occurring naturally in a river is dependent on the composition and quality of the surrounding land over which or through which the water flows before entering the river basin. These dissolved substances directly control the populations of aquatic organisms that are capable of surviving in these waters. Too much of a required substance is equally as deleterious to organisms as too little. The result is that each organism has a specific range of tolerance for each substance and can survive only when multiple factors have overlapping ranges of tolerance so that the synergism is an important concept when considering quality - namely, quantity and quality both have to be considered.

Not only do the quality and quantity of specific substances have to be present but they must be in a form in which the organisms can use it. Much of this quality is dependent on physical factors.

SITE SELECTIONS

At the beginning of this survey in 1967, water and substrate samples were obtained from many non-specific locations in the Guntersville and Wheeler Reservoirs of the Tennessee River in northern Alabama. These samples were analyzed for physical and chemical quality and quantity and for biological organisms in the water and in the substrate. Very early it was obvious that few sites could be completely surveyed without many full-time technicians to analyze the chemicals in the water and to determine the species and population compositions of the aquatic communities of organisms. The initial samples were completely analyzed and evaluated to determine exactly which sites were significant to the study. As a result of these analyses, three sampling sites in Wheeler Reservoir and two in Guntersville Reservoir were selected (see Figure 1). The Guntersville sites were selected as the upstream influences control sites to determine what was coming into Wheeler Reservoir from the upstream reservoir. Another prime consideration in the selection of each site was the ease of access to the water for weekly samplings for several years.

FIGURE 1. REFERENCE LOCATIONS OF SAMPLING SITES IN GUNTERSVILLE AND WHEELER RESERVOIRS.

SAMPLE SITES	LOCATION	DISTANCE FROM MOUTH (MILES)	DISTANCE FROM PREVIOUS SITE (MILES)	HEIGHT ABOVE SEA LEVEL * (FEET)
1	Whitacker	353		595
2	Mirror	352	1	595
	Guntersville Dam	349	3	595
	Flint River	339	10	556.3
3	Whitesburg	334.5	4.5	
4	Wheeler Boat Harbor	305	29.5	
	Browns Ferry Plant	294	11.0	
	B.F. Power Line	292.7	1.3	
5	Douglas Branch	292	.7	
	Wheeler Dam	275	17.7	556.3

* Wheeler Reservoir normal pool level = 556 ft.
Level range = 549-562 feet (13 ft. variation)
Normal Flow Rate = 4410 cf/s

Site 1 - Whitacker Lake. The selection of site 1 on the Jagger Branch of Honeycomb Creek (locally called Whitacker Lake) was because the area had a watershed that is primarily steep sloped and wooded. It is upstream from the main river basin by 4 miles. There is a small bridge (U. S. 431) with low clearance so that boats larger than runabouts had no access. The residences in the Honeycomb Park Subdivision were primarily summer residences with septic tanks and drainage fields. The water in this area is used primarily for recreational activities (swimming, water skiing and fishing), although the North Marshall County Water System is located at the other end of the branch (see Figure 2). The depth of the water in the area was approximately 14 feet at maximum and 9 feet during annual low water in the late autumn. The substrate was primarily packed clay-silt, with abundant submerged vegetation. The water current was negligible. The narrow valley and steep slopes covered by woods reduced the wind factor to minimal (see Figure 3). After all factors were considered, this site was selected as a good "nursery site" for aquatic organisms plus a site used by man primarily for recreation.

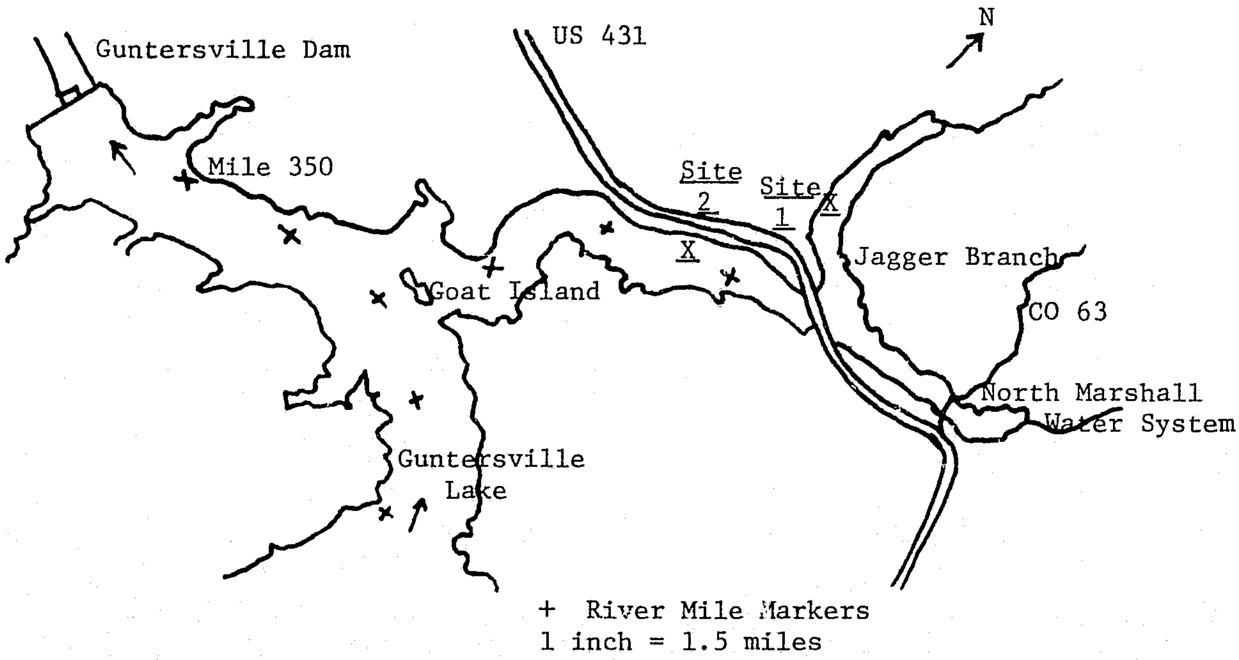

FIGURE 2. MAP REFERENCE LOCATIONS TO SITES 1 AND 2 AND MILE 350 OF THE TENNESSEE RIVER IN ALABAMA.

FIGURE 3. AERIAL VIEW OF SAMPLING SITE 1.

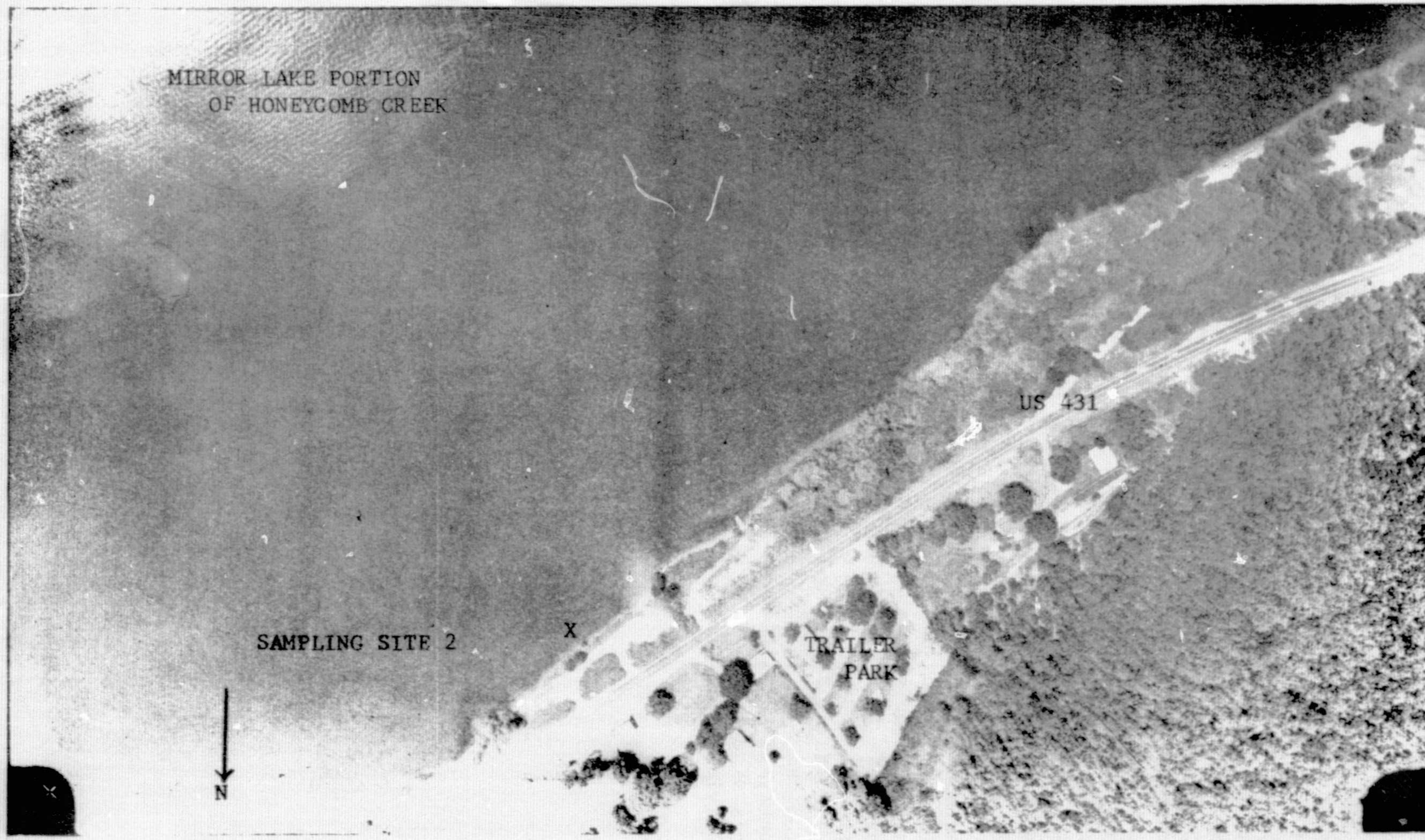

FIGURE 4. AERIAL VIEW OF SAMPLING SITE 2.

Site 2 - Mirror Lake. The selection of the second site for sampling was based on its proximity to the first site, plus the added influence from the circulation of the waters from the main river channel. This site (locally called Mirror Lake) located on Honeycomb Creek is 3 miles up from the main river channel (see Figure 2), mid-way between the river channel and the nursery area. This area is subjected to much larger vessels and much more traffic on the water, as well as more fishermen. The wide expanse of the river at this point plus the relatively less sloped terrain exposed the river waters to more influence from the wind (see Figure 4). The substrate composition is the same as site 1. The number of boat launching sites and the marina plus the addition of house boats made this area ideal for a site to sample for man's recreational activities influences.

Site 3 - Whitesburg. The third site selected was at the Madison County Park and Boat Harbor at mile 334.5 on the Tennessee River @ 3 miles downstream from Guntersville Dam. This site is at a narrow point in the river so that the water is flowing very rapidly. This site is also 4.5 miles downstream from the confluence with the Flint River (see Figure 5). The Flint River watershed is primarily agricultural farmland (see Figure 6). Approximately 0.5 miles downstream from the site is the intake pipe for river water, which is processed by Huntsville Utilities. The substrate at this point is hard packed. This site is an ideal site in determining man's influence from agricultural activity.

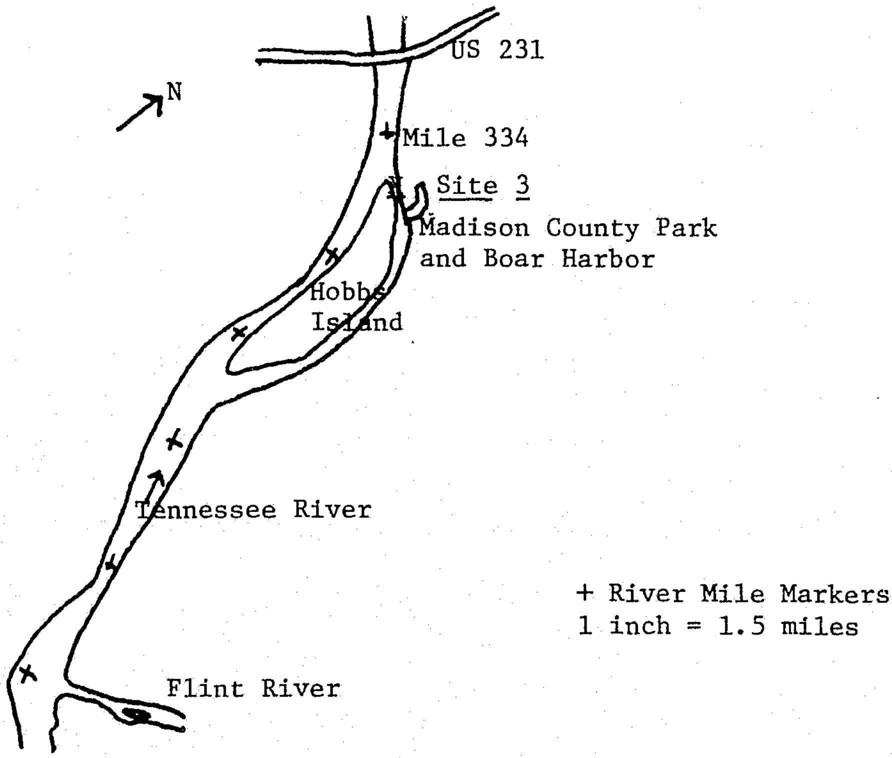

FIGURE 5. MAP REFERENCE LOCATION TO SITE 3 AND MILE 334 OF THE TENNESSEE RIVER IN ALABAMA.

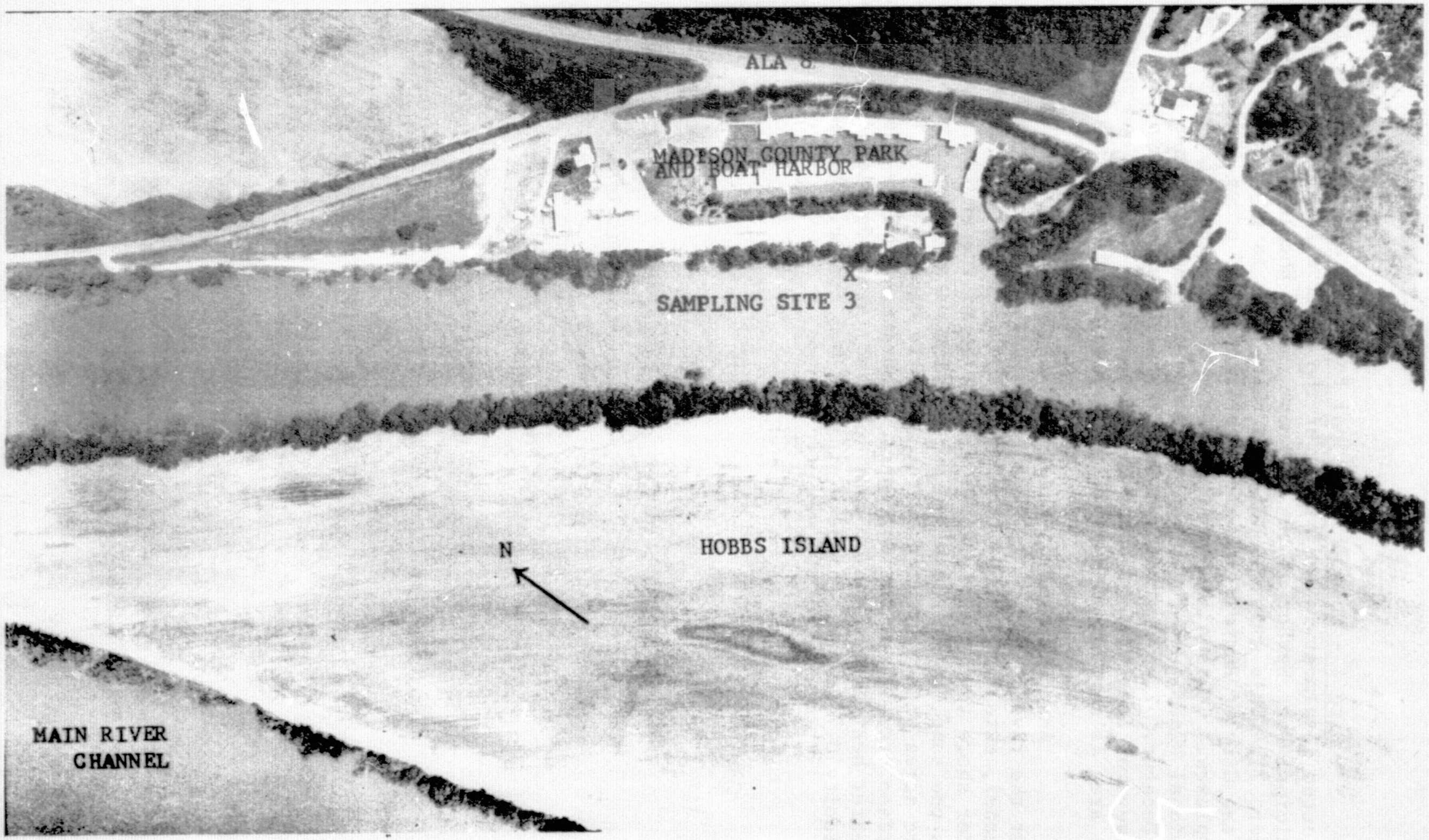

FIGURE 6. AERIAL VIEW OF SAMPLING SITE 3.

Site 4 - Decatur Municipal Boat Harbor. The fourth site selected is almost in the middle of the river mile 305 at the Decatur Municipal Boat Harbor at the upstream end of Wheeler Reservoir (see Figure 7). This site was selected because it is exposed to the influences of the City of Huntsville, Redstone Arsenal and other industrial complexes. It is also downstream from the maximum influence of Wheeler National Wildlife Refuge, but above the maximum influence of the City of Decatur. The substrate varied from hard packed most of the year to several feet of soft sandy-clay immediately after flood periods. The area is surrounded by shallow shifting sand bars (see Figure 8).

Another point of consideration in selecting this site was that the river basin near this area transformed from a narrow deep channel, extending almost from shoreline to shoreline, to a considerably wider shore to shore distance. The width of the navigational channel was the same, but the shallow surrounding water covered considerably more acres with a greater surface area to depth ratio. This increased surface area allows for a greater evaporation surface and correspondingly greater heat absorption or heat loss and, also, decelerates the water velocity 0.7 ft/sec. in the winter and 0.3 ft/sec. in the summer.

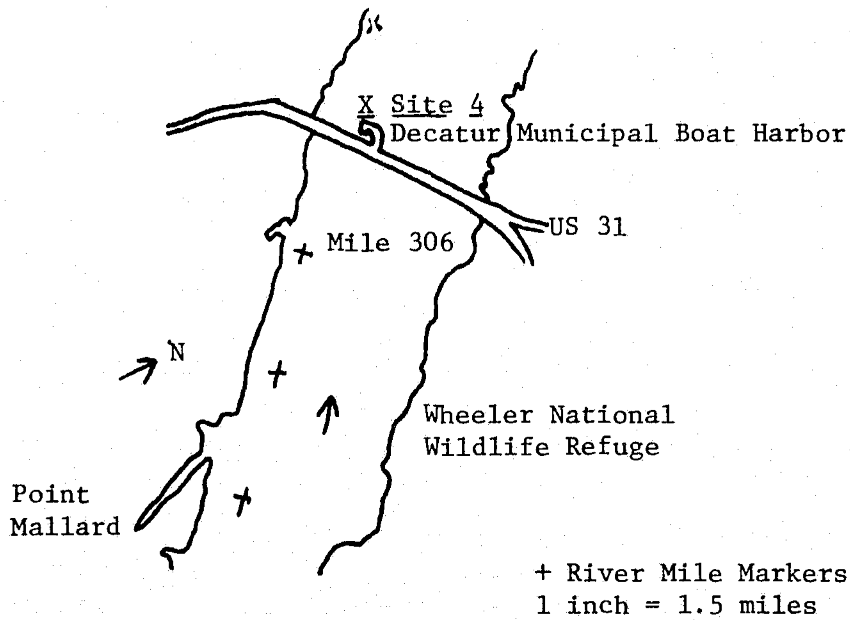

FIGURE 7. MAP REFERENCE LOCATION TO SITE 4 AND MILE 306 OF THE TENNESSEE RIVER IN ALABAMA.

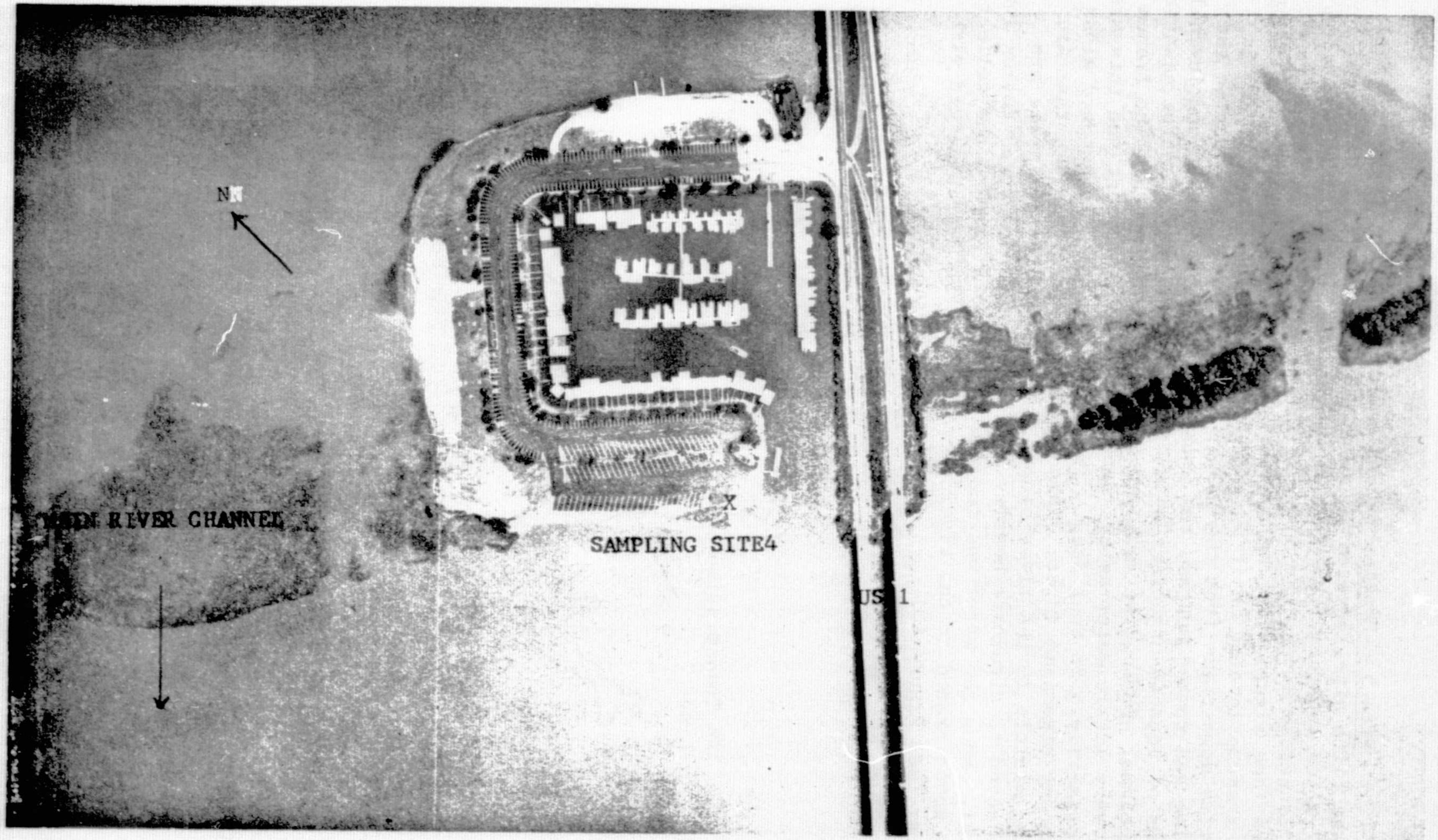

FIGURE 8. AERIAL VIEW OF SAMPLING SITE 4.

Site 5 - Douglas Branch or Browns Ferry Site. The selection of the fifth site, located 13 miles downstream from Decatur and 17.7 miles upstream from Wheeler Dam at the Douglas Branch portion of the Tennessee River, was on a different basis than the other four sites (see Figure 9). The Branch was selected because it was shallow, had a swamp located in it and had a creek flowing into it and is 2 miles downstream from the Browns Ferry Power Plant. During the spring and summer months, the Branch has many embryonic and juvenile forms of aquatic organisms so it is a good nursery area for aquatic organisms. During the fall and winter drawdown months, the Branch has very little water as the drawdown level is 13 feet and this area is primarily 6.28 feet deep. The muddy substrate is exposed along with any organisms in it. This means that any organisms that are able, migrate to the river proper. Those unable to migrate are subjected to alternate heating and freezing temperatures during low water. When the water was too low to obtain a sample, the collecting was moved around to the river proper where the Branch merged with the river (see Figure 10).

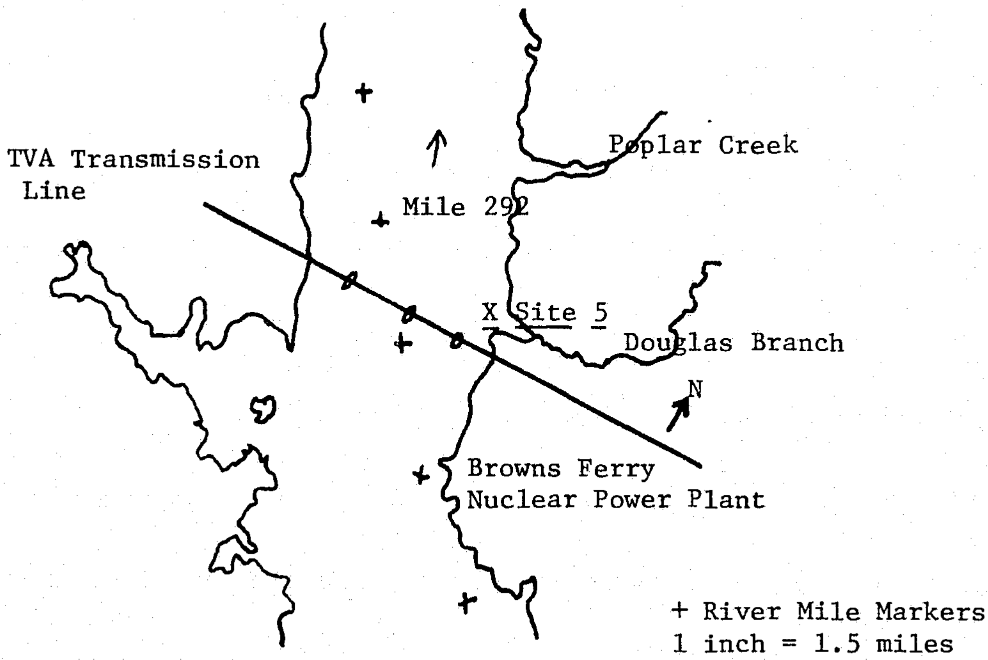

FIGURE 9. MAP REFERENCE LOCATION TO SITE 5 AND MILE 292 OF THE TENNESSEE RIVER IN ALABAMA.

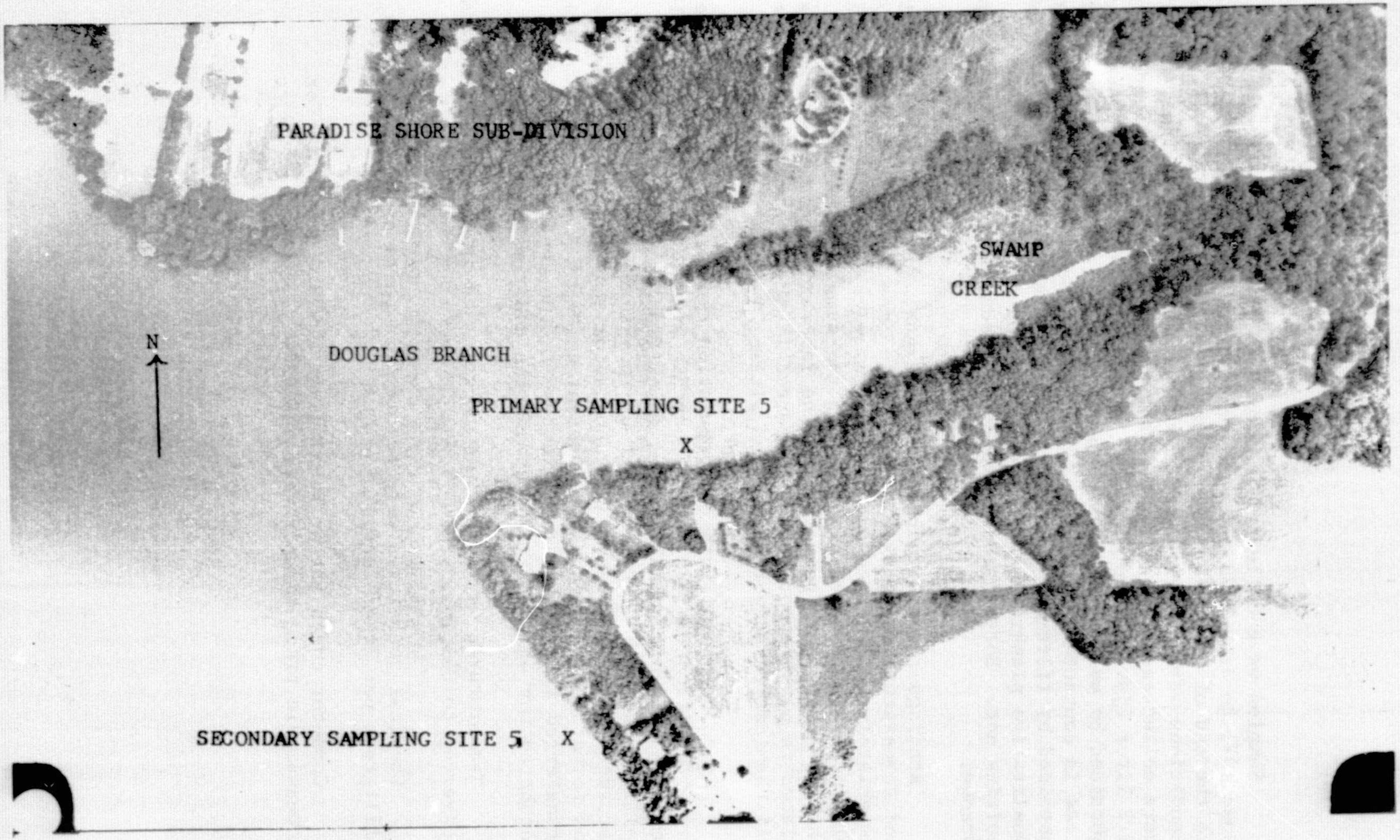

FIGURE 10. AERIAL VIEW OF SAMPLING SITE 5.

SITE SAMPLES

Samples were collected from each of the five sites weekly from June 1971 to June 1973 and also from sites 3, 4, and 5 from March 1974 to the end of May 1975, except during periods of flooding or when conditions were dangerous. All water samples for chemical analyses were collected from one meter below the surface of the water using a 1.2 liter Fjarlie Water Bottle. Samples for dissolved gasses were obtained by using a dissolved gasses sampling bottle so that no air came in contact with the water. Quantitative plankton samples were obtained by filtering the 1.2 liters of water for the chemical test. Qualitative plankton samples were obtained using a 20 mesh nylon bolting net. Bottom samples were obtained using a one liter Ekman dredge.

Readings taken at each site for depth, color, odor, visibility and temperature were taken and recorded (see Figure 11) in the field immediately. Dissolved gasses analyses were performed in the field within several minutes of obtaining the sample. The remainder of the chemical tests were performed in the laboratory from water samples placed in plastic bottles, transported in styrofoam coolers to the lab. All chemical tests were performed within 24 hours.

So as not to disturb the population dynamics of any given area, site identification was made of benthic organisms. Plankton samples were the only biological samples identified in the laboratory. Coliform bacteria tests were set up immediately in the field, returned to the laboratory for incubation and read in 48 hours for gas formation. If a gas were present, an aliquot of the sample was transferred from the presumptive tube to the confirmed tube and incubated for 48 hours to determine the additional gas formed.

Temperatures were observed and recorded in the Fahrenheit and converted to Celcius.

Chemical quantities were recorded in parts per mission (ppm) or milligrams per liter (mg/1).

Computer codes for no readings were 999.000. Codes for unmeasurable trace amounts were 888.000.

FIGURE 11. WATER ANALYSIS DATA FORM USED TO RECORD WEEKLY SAMPLES FROM EACH SITE.

WATER ANALYSIS DATA FORM

SOURCE OF SAMPLE ______________________ DATE __________

CHARACTERISTICS	FAUNA	FLORA
	PLANKTONIC AND PELAGIC	
DEPTH		
COLOR		
ODOR		
RATE OF FLOW		
SUBSTRATE		
SURFACE		
TURBIDITY		
VISIBILITY		
ANALYSES		
ALKALINITY		
HYDROXIDE		
CARBONATE		
BICARBONATE		
AMMONIA		
CALCIUM		
CARBON DIOXIDE		
CHLORIDES		
CHLORINE		
CHROMIUM		
COPPER		
CYANIDE		
DISSOLVED OXYGEN		
DISSOLVED SOLIDS	BENTHIC	
HARDNESS		
IRON		
MAGNESIUM		
NITRATE		
pH		
PHOSPHATE		
SALINITY		
SILICA		
SULFIDE		
TEMPERATURE		
SURFACE		
1 METER		
MANGANESE		
NITRITE		
SULFATE		

RESULTS AND DISCUSSION

Physical Factors

Depth. All sites were initially selected so that there would be a minimum of at least one meter of water at the lowest river level. The only exception to this was Site 5 at the Douglas Branch portion of Browns Ferry. Here, a primary and a secondary site were selected because the spring and summer nursery area of Douglas Branch contained water six feet deep during the reproductive periods of aquatic organisms but the area was above water during the fall and winter non-reproductive periods. At this time, the samples were collected from the secondary site on the river proper (see Figure 10).

Color and Visibility. Visibility was measured in meters as the point where the 20 cm wide white Seechi disc disappeared. Color was determined using the Ford-Ule scale of colors. To standardize these readings and to minimize bias, all of these observations were obtained at approximately 10 A.M.

Water color and vertical visibility must be considered together when considering aquatic areas as habitats for biological organisms. Visible light is not only a reaction of animals photoseceptors but segments of the visible spectrum radiant energy are transformed by plant pigments into biochemical reactors and also heat. Plant photosynthetic pigment chlorophyll a absorbs light energy at two peaks, one at 670-700 nm and at 435 nm, well within the visible spectrum of 380 to 720 nm. The longer light rays would be present in shallow water and the shorter rays would penetrate into the deeper waters allowing photosynthesis at many depths.

In addition to the primary photosynthetic pigment, chlorophyll a, numerous other accessory pigments are capable of absorbing specific wavelengths of the visible spectrum and eventually passing on their excitation energy to chlorophyll a as pigments absorbing the short rays and capable of passing on a fraction of their energy to those absorbing longer waves.

Suspended material in the water scatters the light that penetrates the surface of the water and reflects some back into the atmosphere in specific ranges which may be expressed as color. The Ford-Ule scale of colors is used by limnologists to determine the water color. It ranges from I on the scale which is a bright blue to the extreme brown color XXII.

As the minimum intensity of light penetrating into the water that is necessary for photosynthetic activity has been accepted as 1%, the region from the surface to the depth at which 99% of the surface light disappears is the euphotic zone or the zone in which photosynthesis occurs. As plants are the basis for the food chains

in aquatic systems, the Secchi disc readings are a good measurement of the zone in which plants have the available energy to undergo photosynthesis.

Visibility measurements from all sampling sites were approximately one meter in depth although there was considerable variation depending on various factors such as wind. The visibility decreased markedly several days following heavy rains. Particulate matter carried into the river from land runoff varied with both the quantity of rain and the time of year. Equal amounts of rain within a specific period of time in the winter produced less visibility than in the summer. This can be easily explained in that living plants and their root systems reduced the amount of water reaching the river by percolating through the soil during the prime plant growing periods during the summer months. During the winter months, the plants or their roots were absent in many farming areas and more water and its transported material reached the river during the winter months.

This is further explained by consulting the local climatological data from the previous years. The rainfall in this area is primarily during the winter months or the non-growing season.

Coupled with the above deductions, consideration must be given to the temperature of the water. As water temperature is increased, the viscosity and friction decrease and deposition occurs so that the warmer summer waters have less carrying capacity than the cooler winter waters.

Inspection of the statistical comparisons of the five sites for visibility (see Table 1) agree with the deduction when the determinations were made as to when the minimum and maximum readings were recorded. All of the maximum visibility readings were after long periods without rain in the summer time. All of the minimum values were recorded in late winter or early spring prior to the growing season. The one exception was the Browns Ferry. The minimum values recorded here were over an extended period during the time of site development and construction at the Browns Ferry Nuclear Power Plant from 1971 to 1973. The minimum value at the Whitesburg site was recorded immediately following spring flooding. This site was the one selected because it received waters from the Flint River and Paint Rock River which are primarily in agricultural drainage basins.

Also associated with the period of minimum visibility values in late winter and early spring were considerable quantities of floating and submerged transported debris. This was the most dangerous sampling period because of this debris and the swiftness of the current.

TABLE 1. STATISTICAL COMPARISON OF THE SITES FOR VISIBILITY EXPRESSED IN METERS OF DEPTH.

LOCATION	JUNE 1971 TO JUNE 1973				MARCH 1974 TO MAY 1975			
	MEAN	ST. DEV.	MAX. VAL.	MIN. VAL.	MEAN	ST. DEV.	MAX. VAL.	MIN. VAL.
Whitacker	0.75	0.33	2.00	0.05				
Mirror	0.92	0.37	2.00	0.05				
Whitesburg	0.88	0.37	2.00	0.00	0.75	0.40	1.50	0.00
Wheeler	0.73	0.34	2.00	0.15	0.79	0.29	1.50	0.07
Browns Ferry	0.57	0.34	2.00	0.02	0.64	0.30	1.25	0.07
All	0.77	0.36	2.00	0.00	0.73	0.34	1.50	0.00

Temperature. Water temperature, using a thermocouple and meter, was recorded as each water sample was collected. This was necessary not only to determine the percentage of saturation of dissolved gasses and the rate of chemical reactions but, also, to determine the metabolic rate of biological organisms. Poikilothermic organisms are those whose metabolic rate is directly dependent on the environmental temperature. These include all plants and all animals except birds and mammals which are homiotherms or animals having an internal temperature control. As no birds or mammals are permanent residents of the Tennessee River, only poikilotherms merit consideration.

With the constantly flowing water dissolved gasses at the surface which are exposed to air are at or near saturation for the temperature of the water. The turnover of the water as it flows mixes the gasses so that saturation of gasses for depth should be fairly uniform except when some water of the gasses are used or introduced from within. Utilization of gasses may be for chemical reactions in the water or utilization of some gasses by biological organisms with the resultant production of other gasses.

Heat in the river is primarily from solar radiation either directly as the rays are absorbed by the water or as the water is heated by the warmed land before the rainfall water reaches the river. Introduction of heated water from local industries should mix with the flowing water. The flowing water surface area should be in close equilibrium with the average air temperature. The wider, shallower areas of flowing water with the greater surface area for depth are in closer equilibrium with air than the narrower, deeper areas.

Analyses of the five sampling sites for temperature data shows little difference among the sites for annual temperature (see Figures 12, 17, 22, 23, 32, 33, 42 and 43 for annual site temperature graphs and Figures 13, 18, 24, 25, 34, 35, 44 and 45 for annual °C temperature graphs). High temperature peaks are associated with periods of low rainfall and little cloud cover when the sampling dates are compared to the corresponding climatic conditions on those dates. Dips in the graphs are associated with periods immediately following rainfall and/or extensive cloud cover.

Statistical summary of all of the sites during the sampling periods (see Table 2) shows that the narrowest part of the river in this study (Whitesburg site) had the lowest mean temperature, smallest standard deviation and the lowest maximum temperature, while the widest part of the river with the greatest surface area of exposure had the highest maximum and minimum temperature.

TABLE 2. STATISTICAL COMPARISON OF THE SITES FOR TEMPERATURE IN DEGREES FAHRENHEIGHT AND CELCIUS.

JUNE 1971 TO JUNE 1973

	DEGREES F				DEGREES C			
LOCATION	MEAN	ST. DEV.	MAX. VAL.	MIN. VAL.	MEAN	ST. DEV.	MAX. VAL.	MIN. VAL.
Whitacker	66.71	14.39	87.8	41.0	19.28	7.99	31.00	5.00
Mirror	66.59	14.28	86.9	41.72	19.21	7.93	30.50	5.40
Whitesburg	64.9	13.4	84.2	40.64	18.24	7.42	29.00	4.80
Wheeler	65.52	13.72	85.1	41.36	18.62	7.62	29.50	5.20
Browns Ferry	66.39	13.68	89.06	39.2	19.10	7.60	31.70	4.00
All	66.02	13.9	89.0	39.2	18.89	7.73	31.70	4.00

MARCH 1974 TO MAY 1975

Whitesburg	63.89	12.78	84.0	40.0	17.70	7.11	28.89	4.44
Wheeler	63.0	13.30	84.9	41.5	17.21	7.39	29.44	5.28
Browns Ferry	64.6	14.31	87.0	40.2	18.11	7.95	30.56	4.56
All	63.8	13.48	87.01	40.0	17.661	7.49	30.56	4.44

Chemical Factors

Dissolved Oxygen. Oxygen in water, although derived mainly from air, fluctuates in quantity with use by dissolved chemicals in oxidation reactions (chemical oxygen demand or COD) and by biological organisms in respiration (biological oxygen demand or BOD). Additions to dissolved oxygen are contributed as the result of photosynthetic activity of aquatic plants. To determine the dissolved oxygen of each of the water samples, unaerated samples were obtained from one meter in depth. Chemical analyses were performed immediately using the azide modification of the Winkler method (APHA Standard Methods, 13th ed., 477).[1]

The oxygen percent of saturation for temperature is fairly constant at all study sites (see Figures 14, 19, 26, 27, 36, 37, 46 and 47) having peaks associated with little cloud cover and high periods of photosynthetic activity and low points associated with cloud cover, rainfall, high COD from washed in material and low photosynthetic periods; the annual inverse relation relationship to water temperature is evident. The greatest saturations were in the colder winter months. Sharp drops in the dissolved oxygen saturation at the coldest water temperatures in February and March were associated with rainfall immediately following early spring fertilizer treatment of farmlands. The soil percolated water reaching the river by runoff contributed to a greater COD during these months.

When the dissolved oxygen was examined in parts per million or milligrams per liter (see Figures 15, 20, 28, 29, 38, 39, 48 and 49) which was the actual amount of oxygen present, even sharper fluctuations were notes especially during the warmer summer months and during spring flooding of agricultural land.

Statistical comparison of all of the sites for dissolved oxygen (see Table 3) indicated that the mean dissolved oxygen was lowest at the site draining agricultural lands and having a high COD. This site (Whitesburg) was also the narrowest with the least aquatic plant growth. The widest points in the river with the least flow, least depth and greatest surface area (Whitacker, Mirror and Browns Ferry) were the areas of highest dissolved oxygen and highest percentages of saturation.

All of the samples were above the lower limit for biological activity.

TABLE 3. STATISTICAL COMPARISON OF DISSOLVED OXYGEN IN PARTS PER MILLION AND PERCENT OF SATURATION OF SAMPLE SITES.

JUNE 1971 TO JUNE 1973

	PARTS PER MILLION				% SATURATION			
LOCATION	MEAN	ST. DEV.	MAX. VAL.	MIN. VAL.	MEAN	ST. DEV.	MAX. VAL.	MIN. VAL.
Whitacker	7.41	1.50	10.80	4.0	85.07	15.81	116.00	54.00
Mirror	7.48	1.70	10.80	3.96	85.23	16.87	116.87	50.00
Whitesburg	6.70	1.65	10.00	3.44	74.48	15.31	103.00	42.00
Wheeler	6.92	1.55	10.40	3.20	77.69	13.30	102.00	42.00
Browns Ferry	7.16	1.46	10.00	4.0	81.94	17.17	131.00	52.00
All	7.14	1.60	10.80	3.20	80.94	16.318	131.00	42.00

MARCH 1974 TO MAY 1975

LOCATION	MEAN	ST. DEV.	MAX. VAL.	MIN. VAL.	MEAN	ST. DEV.	MAX. VAL.	MIN. VAL.
Whitesburg	8.09	1.77	11.0	4.0	85.07	10.96	106.00	51.00
Wheeler	8.68	1.84	12.0	6.0	90.82	11.96	110.00	51.00
Browns Ferry	8.94	1.78	13.0	5.0	95.41	12.35	114.00	43.00
All	8.56	1.83	13.00	4.0	90.31	12.48	114.00	43.00

pH. Water in rivers is derived either directly or indirectly from rainfall. Rain is deposited with a relatively high carbon dioxide content and is usually acidic. This is usually neutralized when the water percolates through limestone where it picks up calcium and magnesium ions.[2] In the Tennessee Valley area, the majority of the bedrock is limestone which is a contributing factor to the basic pH of the water.

Water samples from each site were analyzed immediately for pH using the Colorimetric Method.[3]

Analyses of data indicate that the pH range at all sites was on the basic side and with a narrow range (see Figures 16, 21, 30, 31, 40, 41, 50, 51). Peak in the graphs were associated with periods of extensive rainfall and agricultural application of lime. Extreme peaks at Wheeler in October 1971 and May 1972 (see Figure 40) and at Browns Ferry in October 1971 (see Figure 50) were on windy days when the samples were taken as local farmers were applying lime and clouds of the lime dust was blowing into the sampling areas.

Statistical comparison of all of the sites also indicates a fairly constant pH for all of the sites (see Table 4).

TABLE 4. STATISTICAL COMPARISON OF pH FROM THE SITES.

	JUNE 1971 TO JUNE 1973				MARCH 1974 TO MAY 1975			
LOCATION	MEAN	ST. DEV.	MAX. VAL.	MIN. VAL.	MEAN	ST. DEV.	MAX. VAL.	MIN. VAL.
Whitacker	8.07	0.45	8.80	7.00				
Mirror	7.97	0.54	8.85	6.50				
Whitesburg	7.77	0.56	8.80	6.75	7.88	0.45	8.90	6.80
Wheeler	7.78	0.57	9.60	6.80	7.78	0.45	9.30	6.50
Browns Ferry	7.78	0.59	8.90	6.50	7.87	0.40	9.40	7.00
All	7.88	0.56	9.60	6.50	7.81	0.44	9.40	6.50

Alkalinity, Bicarbonate, Carbonate, Hydroxide, and Carbon dioxide

Alkalinity. The term alkalinity of natural waters is confusing as it is often confused with pH. Actually, the term refers to the water capacity for the acceptance of protons. Other terms used interchangeably with alkalinity are acid-combining capacity, buffer capacity, titrable base, and excess lime. Under local conditions, alkalinity is key to the composition of the rock drainage basin of a given stream. In the Tennessee Valley region, alkalinity is usually the result of carbon dioxide in rainwater chemically weathering sedimentary carbonate rock to form bicarbonate solution. The reactions in solution with other substances in solution will result in the bicarbonate fraction, a carbonate fraction and a hydroxide fraction. Although in this area the alkalinity deals with the salts of carbonic acid, action on calcium and magnesium mainly, other contributors may be present such as organic anions, phosphates, silicates, and aluminates in other bodies of water.

To determine the acid neutralizing capacity of the water at the five sampling sites, the titration method (APHA Standard Methods, 13 ed., 52) was used to determine the total alkalinity and its component fractions of bicarbonate, carbonate and hydroxide.

Examination of results from the five sites indicate that the alkalinity (or the buffering capacity) of the waters was in the form of the bicarbonate radical with very few exceptions (see Figures 52 through 62). At Whitaker Lake in July of 1971 and July and August of 1972, small fractions of the total alkalinity were in the form of carbonates. Field records note that during these periods films of motor oil were observed on the surface of the water. These same observations were noted for Mirror Lake when the carbonate fraction was titrated.

Hydroxide fractions were titrated once at each of the Guntersville Reservoir sites, at Whitaker on September 13, 1971 and at Mirror on October 27, 1971. On both of these dates, field notes revealed quantities of decaying aquatic plants in the vicinity of the sampling sites.

At the three sampling sites in Wheeler Reservoir, the alkalinity at the Whitesburg and Browns Ferry sites were entirely in the bicarbonate fraction. The single exception was at the site at the Decatur Boat Dock on October 20, 1971 when 50% of the alkalinity was in the form of the carbonate radical. Notes indicate very high turbidity and the recent passage of a tug and barges. A thin film of oil on the water was also noted.

Comparison of the results with local climatological data indicates that the lower quantities of total alkalinity are associated with periods of rainfall and the lower the quantity. This is particularly true when comparing the 1971 to 1973 data with the 1974 to 1975 data. Rainfall was considerably greater during the latter period.

Carbon dioxide. Carbon dioxide dissolved in rainwater, deposited on land, percolating through soil and over bedrock prior to reaching the river has been chemically changed during these processes. The carbon dioxide deposited in the river directly with rain and that dissolving in the water from air are considered to be free carbon dioxide. This is the form of the gas available for plant photosynthetic activity. Determination of the level of CO_2 in water from all of the samples was by the titration method (APHA Standard Methods, 13 ed., 92).

Periods of prolonged cloud cover were associated with high CO_2 readings when the data (see Figures 63 through 70) were compared to the climatological conditions during the same periods. It was expected that, with filtration of solar energy, photosynthetic activity would be reduced and the raw materials associated with this activity would not be used and would accumulate. Also, plants respiring during this period would add to the amount of CO_2. With increased sunlight, photosynthesis increased and the dissolved CO_2 decreased.

Statistical analyses of all of the carbon dioxide and its forms (see Table 5) indicate that the waters of the Tennessee River in Guntersville and Wheeler reservoirs have a fairly stable buffering capacity when the alkalinity is compared to the stability and narrow range of pH. Indications are also that carbon dioxide levels for plant activity are fairly uniform at all sites under given climatological conditions.

TABLE 5. STATISTICAL COMPARISON OF CARBON DIOXIDE, CARBONATE, AND BICARBONATE OF THE SITES IN PARTS PER MILLION.

CARBON DIOXIDE

LOCATION	JUNE 1971 TO JUNE 1973 MEAN	ST. DEV.	MAX. VAL.	MIN. VAL.	MARCH 1974 TO MAY 1975 MEAN	ST. DEV.	MAX. VAL.	MIN. VAL.
Whitacker	2.96	2.06	12.00	0.00				
Mirror	3.09	2.43	12.00	0.00				
Whitesburg	3.69	1.98	12.00	0.00	7.09	4.12	24.00	0.00
Wheeler	4.03	2.31	10.00	0.00	7.10	3.06	16.00	0.80
Browns Ferry	3.71	2.03	8.00	0.00	6.04	2.61	12.00	0.80
All	3.49	2.21	12.00	0.00	6.76	3.36	24.00	0.00

CARBONATE

LOCATION	JUNE 1971 TO JUNE 1973 MEAN	ST. DEV.	MAX. VAL.	MIN. VAL.	MARCH 1974 TO MAY 1975 MEAN	ST. DEV.	MAX. VAL.	MIN. VAL.
Whitacker	0.33	2.19	20.00	0.00				
Mirror	1.16	4.22	20.00	0.00				
Whitesburg	0.00	0.00	0.00	0.00				
Wheeler	0.32	3.18	32.00	0.00	0.00	0.00	0.00	0.00
Browns Ferry	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
All	0.368	2.60	32.00	0.00	0.00	0.00	0.00	0.00

BICARBONATE

LOCATION	JUNE 1971 TO JUNE 1973 MEAN	ST. DEV.	MAX. VAL.	MIN. VAL.	MARCH 1974 TO MAY 1975 MEAN	ST. DEV.	MAX. VAL.	MIN. VAL.
Whitacker	67.66	9.98	94.00	30.00				
Mirror	60.53	9.54	80.00	16.00				
Whitesburg	62.49	9.35	80.00	30.00	60.12	11.21	110.00	43.00
Wheeler	58.86	8.21	80.00	32.00	56.10	7.28	70.00	38.00
Browns Ferry	57.32	10.79	90.00	30.00	56.17	7.56	70.00	33.00
All	61.44	10.26	94.00	16.00	57.45	9.00	110.00	33.00

ALKALINITY

LOCATION	JUNE 1971 - JUNE 1975 MEAN	ST. DEV.	MAX. VAL.	MIN. VAL.	MARCH 1974 - MAY 1975 MEAN	ST. DEV.	MAX. VAL.	MIN. VAL.
Whitaker	67.825	8.98	94.00	49.00				
Mirror	61.770	7.96	80.00	36.00				
Whitesburg	62.490	9.35	80.00	30.00	60.12	11.21	110.00	43.00
Wheeler	59.190	7.76	80.00	42.00	56.10	7.28	70.00	38.00
Browns Ferry	57.320	10.79	90.00	30.00	56.17	7.36	70.00	33.00
All	61.79	9.7	94.00	30.00	57.46	9.00	110.00	33.00

Ammonia, Nitrate and Nitrite.

Nitrogen in water is present as molecular nitrogen, organic compounds, ammonia, nitrates and nitrites. The various forms enter the river by diffusion from air, rainfall, surface water runoff, ground water drainage and by the metabolic activity of aquatic organisms.

Ammonia. Ammonia nitrogen in water is the result of microbial activity in breaking down plant and animal proteins and excretion from the metabolic activity of animals. In water, ammonia is rapidly oxidized in the presence of oxygen and other bacteria to nitrites and then nitrates so that quantities of the toxic ammonia are rarely present. (APHA Standard Methods, 13th ed., 226).

During the course of the study, ammonia was present in measurable quantities using the Nessler-method on very few occasions (see pages 124, 126, 128, 131, and 134). During the spring of 1972 ammonia was detected at all five of the sites. At the Whitaker, Mirror and Whitesburg sites decaying of large mats of aquatic plants in the vicinity of the sample sites was probably the source of the ammonia. At the Decatur Boat dock, numerous decaying fish were observed. The Browns Ferry site,during this period,had few decaying fish but had many decaying pelecypod mollusks as well as decaying plants.

Nitrites. Under the influence of nitrate forming bacteria and aerobic conditions, ammonia is oxidized to nitrates. Under anaerobic conditions in the substrate, nitrites may be produced by bacteria reduction of nitrates. Nitrite levels at all of the five sampling sites were always considerably below 1 ppm (see pages 137, 138, 139, 140, and 141). Fluctuation in the nitrate level was associated with cooler, cloudy periods when microbial activity was reduced and plant utilization was reduced.

Nitrates. Nitrates in water may be derived from the conversion of other nitrogen forms to nitrates in the water or they may be introduced from other sources. Farm drainage areas for certain nitrates from fertilizer and drainage from livestock feeding slaughtering area. Domestic and some industrial aquatic wastes also contain quantities of nitrates.

Productivity in aquatic systems is dependent on the amount of nitrate available for plant protein synthesis. Should the river water be used for human activities, the nitrate quantities must be considerably lower. U. S. Public Health Service Drinking Water Standards[4] set 10 ppm nitrate as the limit not to be exceeded because of the formation of methemoglobinemia in children. This level is considerably above the 0.3 ppm total soluble nitrogen level sometimes considered as the minimum for eutrophication of water.[5]

At the onset of this study in 1971, the phenoldisulfonic acid method[1] was used and was rapidly abandoned as the content of chlorides above 10 ppm acted as interference (see Figures 95, 97, 99, 100, 103, 104, 107 and 108). The Brucine-sulfanilic acid method[1] was implemented which had iron and

chlorine as interferers but only in concentrations considerably above those levels found in the samples. Because of the toxid arsenic compound, the time required for this test, the costs involved, and the availability of the economical cadmium reduction method in 1973, the Brucine method was discontinued for routine analyses and the cadmium reduction method was adopted. Periodic parallel tests were performed to determine the analyses. Early in 1973, a new shipment of chemicals was received and resulted in analyses using the cadmium method to be 100X greater than cross-checking analyses with the Brucine method (see pages 137, 138, 139, 140, and 141). Several letters were written to the supplier asking for explanations of the erroneous results. While awaiting replies, the laboratory assistants were told to record the data as observed, although periodic cross-testing indicated that the observed results were actually 100 times greater, until a confirmation of this correction factor could be obtained from the company. No reply was received and the data remained as recorded.

New chemicals received in 1974 resulted in the cadmium and the Brucine tests now showing equal results.

If the data was analyzed with the correction for the stipulated dates, the nitrate level in the river is well below maximum limits. This conclusion is supported by the biological data in that phytoplankton and algal bloom did not occur and none of the populations of biological organisms exhibited changes which would have occurred had the nitrate count been as high as recorded.

Hardness, Calcium and Magnesium.

Hardness of water basically is the total concentration of calcium and magnesium ions which are expressed as calcium carbonate. Ions other than these may contribute to the total hardness but these are present in insignificant amounts in natural waters. When the total hardness is greater than the alkalinity, the noncarbonate hardness is primarily due to chlorides and/or sulfate ions. This is an important consideration not only for aquatic organisms using the hardness components but also is important in domestic and industrial usage of the water. Soap and detergent consumption increases as the noncarbonate hardness increases leaving film deposits on glass, fabrics and metals. Deposits of film or scale in heat exchange equipment greatly reduces the efficiency of units so that if the cooling water is not pre-treated to remove these substances, the units must be periodically taken out of service to remove the hardness scale.

Calcium in the carbonate form from the solution of limestone rock is the principle ion contributing to the hardness of natural water. Magnesium, the second most abundant cation in inland temperate waters as magnesium carbonate and dolomite, a calcium, magnesium double carbonate are fairly common forms in home regions.

Titration tests to determine the hardness (APHA Standard Methods, 13th ed., 179) and calcium (APHA Standard Methods, 13th ed., 84) were performed to determine the total hardness and calcium hardness. As sulfates were present only in trace amounts in the third decimal place in ppm (mg/l), magnesium hardness was calculated by subtracting the calcium hardness reading from the total hardness number.

Hardness quantities in the water from the five sites (see Figures 71, 74, 77, 78, 83, 84, 89, and 90) ranges from 9 to 200 parts per million (mg/l) of water with a mean of all of the sites at approximately 70 ppm/l, well below the 500 mg/l level accepted as the maximum level for domestic use (see Table 6).

Comparison of the calcium and magnesium levels indicate that the calcium fraction is more uniformly abundant than the magnesium level (see Figures 72, 73, 75, 76, 79, 80, 81, 82, 85, 86, 87, 88, 91, 92, 93, and 94). Extreme peaks in the graphs for hardness at Whitaker, Mirror and Whitesburg are associated with the magnesium hardness. These peaks are also associated with rain periods following agricultural liming operations using dolomite limestone. As magnesium carbonate is approximately eight times more soluble than calcium carbonate, higher quantities of magnesium were expected.

The same calcium/magnesium ratio in water from the Wheeler-Decatur and Browns Ferry sites follows the same pattern except for a period in October of 1974 when most of the hardness was from the calcium fraction. Field notes from this period indicate extensive aerial application of materials to cropland from very low flying crop dusters on a windy day following a very heavy rainfall (1.24 inches in less than 24 hours).

TABLE 6. STATISTICAL COMPARISON OF THE SITES FOR HARDNESS, CALCIUM, AND MAGNESIUM IN PARTS PER MILLION.

	JUNE 1971 TO JUNE 1973				MARCH 1974 TO MAY 1975			
LOCATION	MEAN	ST. DEV.	MAX. VAL.	MIN. VAL.	MEAN	ST. DEV.	MAX. VAL.	MIN. VAL.
HARDNESS								
Whitacker	74.173	20.179	175.00	15.00				
Mirror	72.279	23.417	200.00	15.00				
Whitesburg	70.971	17.536	150.00	50.00	62.618	7.817	78.00	40.00
Wheeler	68.350	18.336	150.00	15.00	64.561	19.611	200.00	42.00
Browns Ferry	67.939	21.014	150.00	30.00	62.151	18.665	175.00	9.00
All	70.788	20.355	200.00	15.00	63.139	16.317	200.00	9.00
CALCIUM								
Whitacker	48.481	12.203	70.00	10.00				
Mirror	46.356	14.774	130.00	0.00				
Whitesburg	45.706	12.576	68.00	10.00	43.218	10.576	55.00	0.00
Wheeler	46.570	15.673	150.00	10.00	47.737	16.175	160.00	20.00
Browns Ferry	44.434	16.907	150.00	0.00	45.846	15.715	140.00	0.00
All	46.328	14.571	150.00	0.00	45.622	14.500	160.00	0.00
MAGNESIUM								
Whitacker	26.15	23.19	150.00	6.00				
Mirror	26.50	27.424	175.00	0.00				
Whitesburg	25.373	20.303	125.00	0.00	19.255	9.617	55.00	3.00
Wheeler	22.28	18.368	125.00	0.00	16.895	8.632	40.00	0.00
Browns Ferry	23.505	20.674	115.00	0.00	18.288	12.838	90.00	0.00
All	24.792	22.32	175.00	0.00	18.128	10.495	90.00	0.00

Total Dissolved Solids.

Measuring the amount of total dissolved solids in natural waters can be accomplished by determining the individual composition of chlorides, sulfates, and bicarbonates of sodium, calcium and magnesium. This involves many separate tests, time and expense when only the total amount is required. Several methods have been developed that determine the total. Conductivity measurements of the water indicates the content of ionized substances. As the ionized salts increase, the conductivity increases.

The residue weight after evaporating a water sample is another of the methods of determining total dissolved solids of a body of water. This test leads to some error in that bicarbonate components would break down with the application of heat and carbon dioxide would be lost.

The use of a cation exchange resin and direct titration method is employed in a two step titration. In this method, the anions are titrated directly. A second water sample of the same volume as the first is mixed with a cation resin, filtered and titrated as calcium carbonate. The anion and cation readings are added to determine the total dissolved solids.

The U. S. Public Health Service recommends that the total dissolved solids be below 500 ppm for drinking water but this level may be exceeded to 1000 ppm depending on the fractional components.

With waters used for irrigation and industry the total dissolved solids may be expressed as salinity when the chloride, sulfate and sodium levels are high.

Comparison of the five sites (see Figures 96, 98, 101, 102, 105, 106, 109, and 110) indicates that the total dissolved solids were fairly constant at all five sites (see Table 7). Peaks were associated with periods following heavy rainfall in a short period of time. Examination of the fractional components revealed that the predominant components, the anion, bicarbonate, followed by the cation, calcium and magnesium, with anion chlorides accounted for 97.24% of the total dissolved solids.

Of the five sites, the one with the highest total dissolved solids, Whitesburg, is the site also having the highest bicarbonate reading (see Table 5).

TABLE 7. STATISTICAL COMPARISON OF TOTAL DISSOLVED SOLIDS (CONDUCTIVITY) IN PARTS PER MILLION.

	JUNE 1971 TO JUNE 1973				MARCH 1974 TO MAY 1975			
LOCATION	MEAN	ST. DEV.	MAX. VAL.	MIN. VAL.	MEAN	ST. DEV.	MAX. VAL.	MIN. VAL.
Whitacker	159.815	32.907	300.00	75.00				
Mirror	158.444	46.917	350.00	75.00				
Whitesburg	163.205	45.982	300.00	70.00	132.809	27.735	175.00	12.00
Wheeler	158.529	44.324	300.00	50.00	136.100	25.890	200.00	65.00
Browns Ferry	162.381	57.464	350.00	50.00	136.889	19.785	200.00	95.00
All	160.450	46.303	350.00	50.00	135.261	24.854	200.00	12.00

Chlorine. Chlorine is not present naturally in water. Its presence is the result of the chlorination of either a water supply or of final treatment of domestic sewage. Potable water is routinely treated to maintain a constant level of 1 mg/l of chlorine in water to control bacteria. Sewage treatment levels vary with the type of treatment to reduce biological activity.

Chlorine in water may be present as free chlorine or hypochlorous and/or hypochlorate forms or as the combined available chlorine forms, chloramines and chloro-derivatives.

The orthotolidine method used determines both the free and the combined forms of available chlorine (APHA Standard Methods, 13th ed., 117).

The levels of available chlorine in the Tennessee River water at the five sites (see Table 8) was usually below the 0.1 ppm level at all of the sites (see Figures 111, 113, 115, 116, 119, 120, 123 and 124). The exceptions were in the spring of 1972 when both the Guntersville Lake sites had chlorine counts up to 0.2 mg/l following flood stages and in the spring of 1975 at Browns Ferry when the level reached 0.5 mg/l immediately following a 1.15 inch rainfall.

Chlorides. One of the major anions in bacterial waters is chloride. When coupled with sodium, a salty taste can be detected at a concentration of 250 mg/l or can be undetectable at four times this concentration when calcium and magnesium are present. The lower sodium detection limit of 250 mg/l has been set for the upper limit for drinking water, not because it is hazardous to health but because of its corrosive effect on pipes. Excessive amounts of chloride, in pipes could chemically react with the metals and introduce these as ions into the water. The mercuric nitrate test (APHA Standard Methods, 13th ed., 97) was used to determine the chlorides in the water from all five sites starting with June of 1972. Prior to that time, the more expensive argentometric silver nitrate test was used.

Inspection of the results from the five sites (see Figures 95, 97, 99, 100, 103, 104, 107, and 108) would seem to indicate that the silver nitrate test produced higher readings than the later sharpened points mercuric nitrate test. It was impossible to determine if the test was in error as coinciding with the date of change in the test were also changes in the chemical supplier and chemical laboratory technician.

Regardless of which test was used, the results were always below the maximum acceptable 250 mg/l (see Table 8). Increased quantities of chlorides in the river water always followed rain periods with peaks increasing with increased rainfall in late winter and early spring.

TABLE 8. STATISTICAL COMPARISON OF THE SITES FOR SALINITY IN PARTS PER THOUSAND, CHLORIDES AND CHLORINE IN PARTS PER MILLION.

LOCATION	JUNE 1971 TO JUNE 1973 MEAN	ST. DEV.	MAX. VAL.	MIN. VAL.	MARCH 1974 TO MAY 1975 MEAN	ST. DEV.	MAX. VAL.	MIN. VAL.
SALINITY								
Whitacker	0.553	0.491	2.00	0.00				
Mirror	0.603	0.561	2.80	0.00				
Whitesburg	0.553	0.501	1.80	0.00	0.00	0.00	0.00	0.00
Wheeler	0.615	0.504	2.00	0.00	0.00	0.00	0.00	0.00
Browns Ferry	0.603	0.509	2.00	0.00	0.00	0.00	0.00	0.00
All	0.587	0.515	2.80	0.00	0.00	0.00	0.00	0.00
CHLORIDES								
Whitacker	21.946	14.265	80.00	0.00				
Mirror	23.470	13.967	75.00	7.50				
Whitesburg	23.102	14.632	90.00	0.00	9.090	3.296	22.50	2.50
Wheeler	24.830	12.959	60.00	4.00	9.306	3.401	25.00	3.20
Browns Ferry	24.750	15.090	75.00	5.00	8.675	2.531	15.00	0.50
All	23.615	14.240	90.00	0.00	9.034	3.125	25.00	0.50
CHLORINE								
Whitacker	0.019	0.032	0.20	0.00				
Mirror	0.013	0.027	0.20	0.00				
Whitesburg	0.004	0.007	0.03	0.00	0.016	0.018	0.090	0.00
Wheeler	0.003	0.007	0.05	0.00	0.015	0.017	0.080	0.00
Browns Ferry	0.004	0.009	0.05	0.00	0.025	0.070	0.50	0.00
All	0.009	0.021	0.20	0.00	0.018	0.042	0.50	0.00

Iron. The presence of iron in natural waters is usually very low as the soluble ferrous ion is readily oxidized to the insoluble ferric ion. In alkaline surface water the concentration of the soluble form is usually less than 1 mg/l but may be considerably higher in acid surface water. With the addition of the strong oxidizing agent, chlorine, as part of potable water treatment, iron is rarely detected in treated water. In untreated water, iron as either ferrous or ferric ion can be detected in concentrations as low as 0.1-0.2 mg/l by taste.

The total iron test using 1,10-phenantholine colorimetric test using a reagent (APHA Standard Methods, 13th ed., 189) was used to determine the iron in the Tennessee River waters. The iron levels at all sites were usually considerably below 1 mg/l level (see Table 9) except during a period in spring of 1972 when higher concentrations (to 2 mg/l) were observed at four of the five sites (see Figures 112, 114, 117, 118, 121, 122, 125 and 126). The site of the highest mean reading was Browns Ferry. The construction activities during the winter of 1972 and the spring of 1973 resulted in the constant introduction of sediments into the sampling site (see Figure 125). As soon as the construction activities ceased, the iron level from that site returned to the normal level for the other four sites (see Figure 126).

TABLE 9. STATISTICAL COMPARISON OF THE SITES FOR IRON IN PARTS PER MILLION.

	JUNE 1971 TO JUNE 1973				MARCH 1974 TO MAY 1975			
LOCATION	MEAN	ST. DEV.	MAX. VAL.	MIN. VAL.	MEAN	ST. DEV.	MAX. VAL.	MIN. VAL.
Whitacker	0.076	0.105	0.650	0.00				
Mirror	0.108	0.253	2.000	0.00				
Whitesburg	0.155	0.288	2.000	0.00	0.023	0.063	0.310	0.00
Wheeler	0.138	0.191	1.000	0.00	0.030	0.064	0.320	0.00
Browns Ferry	0.167	0.212	1.000	0.00	0.038	0.080	0.410	0.00
All	0.128	0.221	2.000	0.00	0.030	0.069	0.410	0.00

Chromium and copper. Although chromium, which is toxic in very small quantities, may be present in water in both the hexavalent and ivalent forms, the trivalent form is rarely found in water as it is readily oxidized to the hexavalent form. Chromium, in water, was formerly introduced as wastes from electro-plating operations and/or as overflows from cooling towers where chromates were used as inhibitors of metal corrosion. Tests to determine the chromium content of water were performed using the diphenylcarbolydoxide colorimetric method (APHA Standard Methods, 13th ed., 156).

Results of the chromium exhibited the identical pattern for all five of the sites (see pages 213, 214, 215, 216, and 217). Chromium was only detected during prolonged warm periods during the air-conditioning season. When levels were detected, industries or office buildings upstream from the sampling sites had recently flushed these cooling towers. All of these businesses have recently stopped using the chromate inhibitors and are now using non-toxic inhibitors.

The maximum readings from each of the sites (see Table 10) were at or below the 0.05 mg/l level recommended as the maximum for drinking water standards except for one reading at Whitaker which was twice the maximum allowable. The water sample on that day was obtained as a local cooling tower was being flushed.

Copper, unlike chromium, is an essential element in biological metabolic activity, but like chromium, is an industrial waste product when in excess of the acceptable 1 mg/l. Above this limit, an unacceptable bitter taste is present in the drinking water. The colorimetric cuprethol test (APHA Standard Methods, 13th ed., 164) determined that samples from all of the sites (see pages 213, 214, 215, 216, and 217) were well below the maximum and that copper was rarely present in any quantity except trace amounts. Maximum readings for each site (see Table 10) were well below the quantity needed for the copper to be detected by taste.

TABLE 10. STATISTICAL COMPARISON OF CHROMIUM AND COPPER OF THE SITES IN PARTS PER MILLION.

	JUNE 1971 TO JUNE 1973				MARCH 1974 TO MAY 1975			
LOCATION	MEAN	ST. DEV.	MAX. VAL.	MIN. VAL.	MEAN	ST. DEV.	MAX. VAL.	MIN. VAL.
CHROMIUM								
Whitacker	0.003	0.014	0.100	0.00				
Mirror	0.003	0.006	0.05	0.000				
Whitesburg	0.002	0.005	0.025	0.000	0.004	0.012	0.050	0.000
Wheeler	0.002	0.006	0.025	0.000	0.002	0.008	0.050	0.000
Browns Ferry	0.001	0.005	0.030	0.000	0.002	0.007	0.040	0.000
All	0.002	0.008	0.100	0.000	0.003	0.009	0.050	0.000
COPPER								
Whitacker	0.007	0.036	0.280	0.000				
Mirror	0.004	0.015	0.100	0.000				
Whitesburg	0.003	0.018	0.110	0.000	0.001	0.007	0.050	0.000
Wheeler	0.001	0.008	0.050	0.000	0.000	0.001	0.010	0.000
Browns Ferry	0.002	0.012	0.100	0.000	0.000	0.000	0.002	0.000
All	0.004	0.200	0.280	0.000	0.000	0.004	0.050	0.000

Phosphate, Total, Ortho, and Meta. Phosphates occur in water in trace amounts from chemical weathering of rocks, from farmland drainage and from waste treatment plants. Complexes of phosphates occur as orthophosphates, meta or polyphosphates, and organic phosphates. Organophosphates and metaphosphates dissolved in water are readily converted to orthophosphates depending on their type, water temperature and pH.

Although phosphates are essential to all living organisms in energy storage and genetic material, and are often the limiting plant nutrient for growth, excess phosphates can cause eutrophication especially when high nitrate counts and higher water temperatures are encountered.

To determine the phosphates present in the waters of the Tennessee River, water samples were treated to determine the total phosphate present and the orthophosphate present. By subtracting the orthophosphate reading from the total phosphate reading the metaphosphate was obtained. Organophosphates were not tested for. The test used for the total phosphate was boiling acid hydrolysis of the water sample containing phosphates. All phosphate forms except certain organic phosphates are converted to otheophosphates (APHA Standard Methods, 13th ed., 523). The total inorganic orthophosphates were determined by adding ammonium molybdate to the sample forming ammonium phosphomolybdate. By adding stannous chloride to the ammonium phosphomolybdate, it was reduced to molybdenum blue (APHA Standard Methods, 13th ed., 523, 524, and 532). A second aliquot of the water sample was subjected to the orthophosphate test without hydrolysis to determine the orthophosphate quantity. This was subtracted from the total phosphate amount to obtain the metaphosphate.

Analyses of results (see Table 11 and Figures 127 through 150) indicate discrepancies. Although the same technician and the same procedure were involved during the entire sampling period, three orders of chemicals were used from the same supplier. The first order of chemicals were used from June 1972 to the end of May 1974, the second group of chemicals from June 1974 to April 1975 and the third order from April of 1975 to the end of the sampling period. The second batch of chemicals resulted in very high metaphosphate and total phosphate counts. The orthophosphate count was fairly even for the entire period. Contact with the supplier produced no explanation.

When examining the results of the orthophosphates and comparing with climatological data, the phosphates counts are increased during periods of cloudiness and rain, that is, when the plants are undergoing reduced photosynthetic activity.

TABLE 11. STATISTICAL COMPARISON OF TOTAL PHOSPHATE, METAPHOSPHATE, AND ORTHOPHOSPHATE IN PARTS PER MILLION.

TOTAL PHOSPHATE

	JUNE 1971 TO JUNE 1973				MARCH 1974 TO MAY 1975			
LOCATION	MEAN	ST. DEV.	MAX. VAL.	MIN. VAL.	MEAN	ST. DEV.	MAX. VAL.	MIN. VAL.
Whitacker	0.208	0.230	1.250	0.00				
Mirror	0.258	0.527	3.700	0.00				
Whitesburg	0.253	0.310	2.000	0.00	3.35	1.73	5.60	0.13
Wheeler	0.313	0.319	2.100	0.008	3.09	1.65	5.50	0.10
Browns Ferry	0.257	0.183	1.000	0.011	3.14	1.84	5.80	0.13
All	0.258	0.336	3.700	0.00	3.19	1.74	5.50	0.10

METAPHOSPHATE

LOCATION	MEAN	ST. DEV.	MAX. VAL.	MIN. VAL.	MEAN	ST. DEV.	MAX. VAL.	MIN. VAL.
Whitacker	0.162	0.220	1.230	0.00				
Mirror	0.210	0.533	3.700	0.00				
Whitesburg	0.177	0.303	1.992	0.00	3.13	1.73	5.38	0.01
Wheeler	0.244	0.332	2.100	0.00	2.84	1.68	5.32	0.00
Browns Ferry	0.180	0.165	1.000	0.008	2.90	1.80	5.42	0.03
All	0.194	0.336	3.700	0.00	2.96	1.74	5.42	0.00

ORTHOPHOSPHATE

LOCATION	MEAN	ST. DEV.	MAX. VAL.	MIN. VAL.	MEAN	ST. DEV.	MAX. VAL.	MIN. VAL.
Whitacker	0.046	0.063	0.330	0.00				
Mirror	0.049	0.057	0.220	0.00				
Whitesburg	0.077	0.086	0.480	0.00	0.20	0.11	0.80	0.01
Wheeler	0.081	0.069	0.240	0.00	0.22	0.13	0.95	0.005
Browns Ferry	0.077	0.066	0.250	0.00	0.21	0.12	0.70	0.00
All	0.066	0.071	0.480	0.00	0.21	0.12	0.05	0.00

Silica. Low concentrations (usually less than 10 mg/l) of silica occur in natural water in both soluble and colloidal forms as the result of chemical weathering of igneous rocks and the dissolving of the structural remains of organisms such as diatoms. Silica is economically significant in decreasing the efficiency of high-pressure boilers with the formation of heat resistant silicate scale on the turbine blades. To determine the quantity of silica in the water of the Tennessee River the colorimetric molybdosilicate method (APHA Standard Methods, 13th ed., 303) was used for the first year of the study (June 1971 to July 1972). Because of continual interference by turbidity and phosphates and the instability of the yellow color, the colorimetric heteropoly blue method (APHA Standard Methods, 13th ed., 306) was adopted in July 1972. This test, although more time consuming than the previous methods is more accurate because of the stability of the blue color.

Examination of the results (See Figures 152, 153, 154, 155, 156, 157 and 158) would indicate that the silica level in the water from all five of the sites was lower in the first year than in the following three years of the study. These results during the first year are questionable because of the critical timing of the test and the distortion of the yellow color. With the heteropoly blue test, the results were appreciably higher and more constant. The stability of the diatom populations at all of the sites indicated that the results for the first year were low.

Fluctuations in silica during the entire period of the study coincide with cloud cover and rain periods. When the cloud cover was extensive, the photosynthetic activity of the diatoms was reduced and their utilization of silica was reduced. Rain with its dissolved carbon dioxide forming carbonic acid increased the chemical weathering of rock and increased the silica in the runoff into the river.

Statistical comparison of the individual sites (see Table 12) reflect the difference between the two tests used. If the results from the first year of the study were not considered in the statistics for the period from June 1971 to June 1973, the results would not vary significantly from the March 1974 to May 1975 data.

TABLE 12. STATISTICAL COMPARISON OF THE SITES FOR SILICA IN PARTS PER MILLION.

	JUNE 1971 TO JUNE 1973				MARCH 1974 TO MAY 1975			
LOCATION	MEAN	ST. DEV.	MAX. VAL.	MIN. VAL.	MEAN	ST. DEV.	MAX. VAL.	MIN. VAL.
Whitacker	3.066	1.661	6.40	0.00				
Mirror	3.318	1.787	7.60	0.00				
Whitesburg	3.598	2.048	7.20	0.00	5.153	0.945	7.60	2.60
Wheeler	3.545	2.011	7.60	0.00	5.281	0.859	7.60	2.72
Browns Ferry	3.501	2.048	8.00	0.00	5.106	0.847	6.52	2.70
All	3.403	1.925	8.00	0.00	5.183	0.888	7.60	2.60

Salinity. Salinity, in the case of sea water is the term used to describe the total dissolved solids content. In the context of lacustral studies, salinity is used to describe the solids content of fresh water used for agricultural purposes and is always considered with chlorides (see Table 8) as this is the principal form of the halides tested for when using silver nitrate titration with potassium chromate as the indicator.

This test was discontinued after the first phase of the study (June 1971 to June 1973) because the results were only of agricultural significance and little river water is used for irrigation. The questionable meaning of the test in parts per thousand and the cost of the silver nitrate for the test precipitated the decision to discontinue this test (see pages 246, 248, 250, 253, and 256).

Sulfides and Sulfates. Sulfides in water are readily oxidized to sulfates in the presence of oxygen. When these occur in surface water they are usually the result of bacterial action on organic substances under aerobic conditions. The presence of the sulfide is detectable by order in very minute quantities. During the course of this study, the methylene blue method was used to determine sulfides (APHA Standard Methods, 13th ed., 555). The one time during the entire study when sulfides were detected at any of the five sites was at Mirror Lake in February of 1972 when it was present at 0.20 ppm (mg/1). At this low-concentration, the test was not needed to detect its presence, only its quantity. Surveying the immediate vicinity of the sampling site revealed a sunken decaying steer.

Sulfates were determined during the study using barium sulfate turbidemetric method (APHA Standard Methods, 13th ed., 334). The presence of sulfate was only in trace amounts at all of the sites although the sulfate ion is usually second only to carbonate as the anion in most fresh waters, here it is replaced by chlorides. This was to be expected because the major rock component of the Tennessee River drainage system is limestone, calcium carbonate. In these situations, the comparitively little sulfate available is readily utilized by algae in the manufacture of amino acids containing the sulfhydryl group which are normal in plant proteins.

Biological Factors

Organisms living in aquatic habitats that have directionally flowing waters (streams, rivers, etc.) encounter different environmental problems than do the organisms inhabiting waters in closed basins (ponds, lakes, etc.). Planktonic organisms are usually microscopic and completely at the mercy of currents (see Table 13). They are produced in one place and carried with the currents to other locations. The organisms which are large enough and strong enough to move against currents are the nektonic organisms (see Table 14). These must be considered, along with the plankton, as transients in any specific locality. The only organisms that can be classified as permanent residents in any given lotic environment are those organisms associated with attachment in or on the substrate (see Table 15).

Planktonic organisms. The planktonic populations from the five sites varied considerably as to the number of organisms, the number of species and the species dominance. Plankton are considered to be produced on solid substrates in slow moving quiet waters. As the numbers of individuals in these areas increase in number and the attachment area is reduced per individual, any disturbance of the attachment area by wind, waves, etc., detaches these organisms and they are carried by water currents. Plankton production stable surfaces may be solid substrates as rocks, tree roots, branches or plants. As the area also serves as points of algae which are the basis of aquatic food chains, the plankton are produced in areas where light penetration encourages algal growth.

At the Whitaker Lake site, the hard packed clay substrate with little water current was an ideal nursery area. Small organisms were able to attach and feed in the areas of submerged plants and branches. Periods of high plankton counts per liter of water were associated with two factors in this area. Samples obtained on Sundays and Mondays of the week during late spring, summer, and early fall were associated with sunny mild weekends when recreational activity (especially water skiing) generated waves which scoured the shore line and abraded the organisms from their points of attachment.

Periods immediately following heavy rains and sustained winds also increased wave activity on the shoreline and increased the plankton counts.

The predominant groups in the plankton samples from Whitaker Lake were Cladocera and Rotifera (see Figure 159). Various peaks in the populations for each group showed seasonal fluctuations with different species in each group being dominant under different environmental conditions. During the winter and cold water spring months, the dominant group of Cladocerans were in the genus *Bosmina* while *Pleuroxus* were dominant in the warm summer and fall months. The dominant Rotifers present during the cold water months were of the genera *Conochilus* and *Synchaeta* while in the warm water months, the dominant Rotifera were *Brachionus* and *Asplanchna*. The Copepoda genus *Cyclops* was present during the entire annual cycle but was at higher percentage counts during the colder water months but actually the

number of individuals did not increase the numbers of individuals of other groups decreased so that the percentage of Copepods increased in the total population of organisms.

The Mirror Lake substrate was similar to Whitaker Lake but the greater susceptability to wind action and shore scouring was evident with the examination of the plankton counts (see Figure 160). The Cladoceran counts were very high during and immediately following the spring winds, rains and water fluctuations. The greater water skiing activity during the summer months produced a greater plankton count. The warm water species of Cladocera were Chydorus and Bosmina. The Rotifera genera were almost identical to the annual distribution in Mirror Lake.

At both the Whitaker and Mirror Lake site the Protozoan groups were closely allied. The photosynthetic Flagellates were the predominant Protozoans immediately following the spring rains and the Ciliates were the Protozoan group associated with the fall water draw-down.

The influence of the Flint River waters at the Whitesburg Boat Dock can be seen in the plankton samples from this site (see Figure 161). The site itself has very little shoreline and the water is so rapid that few, if any plankton are produced at this site. Those identified from the samples were from different origins as the predominant group during all warm water seasons of the year were almost exclusively the Cladocerans of the genus Bosmina. During the peak periods in May and October, the plankton counts were so great in number that the nets were occluded and the organisms were crushed. During the cold-water months, the Cladocerans were replaced by the Copepods Cyclops. Protozoans from this site were in the Flagellate genus Euglena. Rotifers genera were Brachionus and Synchaeta in the warm months and Asplanchna during the cold months.

Wheeler site at the Decatur Boat Dock were the least in total quantity of all of the five sites. Cladocerans Bosmina were the dominant warm-water species but various species were present during all seasons with none being present in great numbers, Sida, Dapnia, Pleuroxus and Chydorus. Rotifers present were Brachionus in the summer and Synchaeta in the winter months. Ciliated protozoans were the protozoans present during the entire year (see Figure 162).

The rocky substrate of the Browns Ferry site had some algal growth but the current abraded it to just barely covering the rocks. The plankton population at this site was primarily derived from the shallow, wide upstream areas. The slow moving waters produced lush algal and plant communities which produced a broad food base for the plankton (see Figure 163). During the warm-water months when these areas were covered with shallow water, the predominant Cladoceran genera were Pleuroxus and Chydorus while during the colder winter months, these areas were exposed to air. During the cold months, the predominant genus was Bosmina produced further upstream. The dominant genus of Rotifera during the entire year were of the genus Brachionus. Cyclops was the dominant Copepod genus with high population counts during the cold months.

Nektonic Organisms. Samples of organisms moving freely against currents and considered as transients at each site were obtained by various methods. Hand nets were used to collect turtles and fish. These were placed in containers, identified and checked immediately using standard identification keys 6, 7, and 8. After the identification was checked, the animals were returned to the river. Fishes not obtained by net were identified from biased samples taken by hook and line. Fishermen in the immediate vicinity of the sampling sites were extremely cooperative in allowing the field teams to examine their catches either from their creels or before they returned the fish to the river.

Of the five sampling sites, only two of the sites had nektonic vertebrates present during all seasons of the year. The Whitaker and Browns Ferry site had resident populations of turtles and also were the only sites where fish redds were seen. Turtles were seen at the Mirror and Decatur sites only during the colder winter months. The steep banked, rapid waters of the Whitesburg site were not compatible with resident populations of aquatic vertebrates.

Some species of fishes were obtained from samples at all five sites. The most frequently encountered fishes at all five of the sites regardless of the time of the year was the bluegill sunfish (Lepomis macrochirus) and black crappie (Pomoxis nigromaculatus). The gizzard shad (Dorosoma cepedianum) was the next most frequently encountered species of fish. It was especially common during the very warm periods in August.

Other species of fishes were only observed at one of the sites. The two species of the buffalo fish (Ictiobus cyprinellus and I. bubalus) the carp (Cyprinus carpio) were in samples from the Browns Ferry site. Attached to the carp at this site on one occasion was the chestnut lamprey (Ichthyomyzon castaneus). The only other species encountered just once during the sampling periods was the banded sculpin (Cottus carolinae) caught at Whitaker.

The white bass (Roccus chrysops) was observed in creel samples from both of the Guntersville Lake sites, Whitaker and Mirror while two members of the catfish family, the channel catfish and blue catfish, were observed in creel samples only from the Wheeler Reservoir sites at Whitesburg and Browns Ferry. The black bullhead catfish was obtained in net and creel samples from Whitaker, Mirror and Decatur. Creel samples of the other members of the Sunfish Family, the green sunfish and redear sunfish, were identified from creel and net samples from all of the sites except the Whitesburg site.

Turtle residents at the Whitaker and Browns Ferry sites were primarily the stinkpot turtle (Stenothaerus odoratus) and the painted turtle (Chrysemys picta). During the warm sunny spring and fall days and early in the morning and evenings during the summers, numbers of these could be seen on logs and tree branches extending from the shore line.

During the colder months, the stinkpot turtle, the map turtle (Graptemys geographica) and the pond slider (Pseudemys scripta) were observed at the Mirror and Decatur sites. The protected boat basin

at the Decatur Municipal Boat Harbor (see Figures 7 and 8) located in the region of the widest, shallowest point of the river which was exposed during water drawdown and the boat harbor appeared to serve as protected winter area for these turtle populations. The only site where the snapping turtle (Chelydra serpentina) was observed was at the Whitaker site where these were observed only during winter and early spring months. There appeared to be a nesting site. Large adults were observed in the winter and early spring but newly hatched young were observed in the early spring of 1972 and 1973 immediately after the spring rainy seasons ended.

Other veterbrate organisms observed at several of the sites cannot be considered aquatic organisms as their lives are predominantly on the land or on the surface of the water. Snakes and frogs were frequently observed in the vicinity of the Whitaker and Browns Ferry sites during all parts of the year. Ducks, geese and seagulls were residents of the Mirror, Decatur and Browns Ferry sites during the winter months. None of these were collected or identified to species. They were noted at the various sites as predators on aquatic organisms.

Benthic Organisms. The true residents of each of the sites were the benthic organisms, those associated with being in or on the substrate. As these organisms are either permanently attached or are able to move very slowly, any change in water level or turbidity affects them. Seasonal human activity also drastically affects these organisms by covering them with silt and detaching them from the substrate.

At each of the sites, benthic samples of the organisms were obtained by Ekman dredge, hand picking of rocks and submerged objects. These were identified in the laboratory from standard keys for aquatic plants 9, 10, 11, 12, and 13 and animals 13, 14, 15, and 16. Subsequent samples were identified in the field except when a previously unidentified organism was obtained.

Initially, attempts were made to count the number of individuals but as many colonial forms were present and the colonies grew together, this became impossible. Field notes were then recorded by the most predominant groups to the least predominant in number.

Many organisms such as crayfish, sponges, bryozoans, etc. could not be identified until later when they had reached maturity.

When examining all of the data from all of the sites, one of the obvious facts which presented itself was that, although some of the species were the same, there were distinctly separate summer and winter population of organisms at each of the sites. The fall turnover in populations was very drastic, especially at the Browns Ferry site where there was very little or no water and where the alternate site with similar summer populations was used. The Whitaker site also was drastically changed during the winter when less than one foot of water was present.

The spring turnover in population was equally as drastic as the fall turnover in populations but was associated with the heavy spring rains

flooding the areas and abrading the substrates with the water transported material.

During both stages of the river level, during warm water, and during cold water draw-down periods, the same two sites, Whitaker Lake and Browns Ferry, had the greatest number of populations of organisms (see Table 15) and the greatest number of individuals. Populations and numbers of individuals at the other three sites were high during the warm months but were greatly reduced during draw-down months. All sites were very low in populations and individuals immediately following the spring floods and in the fall, immediately after draw-down.

Tropic Levels of Organisms. In the Tennessee River, the biological organisms are arranged in specific groups in the food chain. Planktonic and attached photosynthetic plants are the basis of all food chains. These are responsible for converting light energy into chemical energy. In the process of multiplying and increasing in size, the plants require essential minerals for nutrition which fall into two major groups, macronutrients and micronutrients. When deficiencies in quantity or when the necessary nutrients are not present, the organisms requiring specific amounts of each mineral succumb and are removed from the food chain.[17]

Organisms feeding exclusively on live plant material are the herbivoures, while organisms feeding on both plants and animals are omnivoures. Those animals feeding exclusively on animals are carnivoures. Organisms feeding on dead or decaying plant and animal matter are scavengers.

At the five sampling sites, the organisms at each of the sites fall into the food chain in specific groups (see Table 16).

CONCLUSIONS AND RECOMMENDATIONS

From the physical, chemical and biological data presented, it can be determined that the Guntersville Reservoir and the Wheeler Reservoir portions of the Tennessee River have two major turnovers during an annual cycle. These occur during the warm summer anf fall months and during the cold, draw-down, winter and early spring months. Smaller fluctuations follow heavy rains or periods of extensive cloudiness.

Biological population dynamics closely follow the physical and chemical parameter changes. Phytoplankton and plant populations increase in numbers of individuals following heavy rains which transport plant nutrients into their environment. Invertebrate organisms increase in number following plant increase.

As the water level is reduced, attached organisms that are exposed either die or are in a resistant state. These resistant stages emerge again when the river water level is up.

The populations of organisms at the Browns Ferry site have not changed in either species composition or number of individuals with the onset of the Browns Ferry Nuclear Power Plant operations. The operating time for the two reactors was minimal and the two reactors were only in operation at full capacity for less than one week during the sampling period.

On the basis of the presented physical and chemical data, biological listings and field observations, the following recommendations are presented.

1. Develop a math model for the physical and chemical parameters of each of the reservoirs.

2. To determine the effect of the Browns Ferry Nuclear Power Plant, continue the weekly sampling from the Decatur (site 4) and Browns Ferry (site 5) locations to compare to the pre-plant, one reactor, two reactor and full operation effect.

3. Develop a math prediction model with the physical, chemical and climatological data.

4. Obtain data on species of fish caught by fisherman fishing over the plant effluent pipe to determine species susceptibility to drastic thermal changes.

APPENDIX A

```
FANTASTIC-DC*ROSE.MAIN2
          SUBROUTINE MAIN2
          REAL YASD,YAMN,MXYA,MNYA
          REAL XASD,XAMN,MXXA,MNXA
          REAL XARRAV(750),XARRSD(5),XARRMN(5),MXXARR(5),MNXARR(5)
          REAL YARRAV(750),YARRSD(5),YARRMN(5),MXYARR(5),MNYARR(5)
          INTEGER NXA(5),NSXA,NTXA
          INTEGER NYA(5),NSYA,NTYA
          INTEGER XN(5),YN(5)
          REAL TTEMP(5),TPH(5)
          INTEGER DATS,SITE(5)
          INTEGER XROWS(5),YROWS(5)
          INTEGER MONTBL(12)
          INTEGER XQRTDA(20,5),YQRTDA(20,5)
          INTEGER XYR(20,5),YYR(20,5)
          REAL XQRTAV(20,5),YQRTAV(20,5)
          REAL XSUM(150,5),YSUM(150,5)
          INTEGER LXDIV(150,5),LYDIV(150,6)
          INTEGER XMONTH(150,5),YMONTH(150,5)
          REAL XAVG(150,5),YAVG(150,5)
          INTEGER XDARR(150,5),YDARR(150,5)
          REAL XARRAY(150,5),YARRAY(150,5)
          DATA NTXA,NTYA/2*0/
          DATA NXA,NYA/10*0/
          DATA NSXA,NSYA/2*1/
          COMMON
         *XARRAV,YARRAV,XSUM,YSUM,LXDIV,LYDIV,
         *XMONTH,YMONTH,XAVG,YAVG,XDARR,YDARR,
         *XARRAY,YARRAY,XQRTDA,YQRTDA,XYR,YYR,
         *XQRTAV,YQRTAV
          JX = 0
          KX = 0
          LX = 0
          MX = 0
          NX = 0
          JY = 0
          KY = 0
          LY = 0
          MY = 0
          NY = 0
          XCARDS = 0
          CALL ZERO(XDARR,XAVG,XMONTH,XROWS,XSUM,LXDIV,XQRTAV,XQRTDA,XYR,XN,
         *150,5)
          CALL ZERO(YDARR,YAVG,YMONTH,YROWS,YSUM,LYDIV,YQRTAV,YQRTDA,YYR,YN,
         *150,5)
       20 READ(5,5,END=101)DATS,(SITE(I),TTEMP(I),I=1,5),(SITE(I),TPH (I),I=
         *1,5)
          XCARDS=XCARDS+1
          CALL ARRAYS(DATS,TTEMP,SITE,JX,KX,LX,MX,NX,XARRAY,XDARR)
          CALL ARRAYS(DATS,TPH,SITE,JY,KY,LY,MY,NY,YARRAY,YDARR)
          GO TO 20
      101 CONTINUE
          MAXXY = MAX0 (JX,KX,LX,MX,NX,JY,KY,LY,MY,NY)
          CALL AVERAG(XARRAY,JX,KX,LX,MX,NX,XDARR,XAVG,XMONTH,XROWS,XSUM,LXD
         *IV)
          CALL AVERAG(YARRAY,JY,KY,LY,MY,NY,YDARR,YAVG,YMONTH,YROWS,YSUM,LYD
         *IV)


          MXXROW = MAX0(XROWS(1),XROWS(2),XROWS(3),XROWS(4),XROWS(5))
          MXYROW = MAX0(YROWS(1),YROWS(2),YROWS(3),YROWS(4),YROWS(5))
          WRITE(6,40)
          CALL WRITE(XAVG,XMONTH,MXXROW,YAVG,1)
          WRITE(6,40)
          CALL WRITE(YAVG,YMONTH,MXYROW,YAVG,1)
    C*****SETS UP A TABLE SHOWING HOW MANY MONTHS TO BE INCLUDED IN A
          I=0
       30 CONTINUE
          DO 10 KJ=3,1,-1
          I=I+1
          MONTBL(I)=KJ
          IF(I.EQ.12) GO TO 20
       10 CONTINUE
          GO TO 30
       20 CONTINUE
    C*****QUARTERLY AVERAGES
          CALL AVGQRT(XSUM,XMONTH,XROWS,MONTBL,XQRTAV,XYR,XQRTDA,XN,LXDIV)
          CALL AVGQRT(YSUM,YMONTH,YROWS,MONTBL,YQRTAV,YYR,YQRTDA,YN,LYDIV)
          MAXXN = MAX0(XN(1),XN(2),XN(3),XN(4),XN(5))
          MAXYN = MAX0(YN(1),YN(2),YN(3),YN(4),YN(5))
          WRITE(6,50)
          CALL PRQAV(XQRTAV,XQRTDA,MAXXN,YQRTAV,1,XYR)
          WRITE(6,50)
          CALL PRQAV(YQRTAV,YQRTDA,MAXYN,YQRTAV,1,YYR)
          DO 600K=1,5
          GO TO (400,401,402,403,405),K
    400   WRITE(6,500)
          GO TO 700
    401   WRITE(6,501)
          GO TO 700
    402   WRITE(6,502)
          GO TO 700
    403   WRITE(6,503)
          GO TO 700
    405   WRITE(6,504)
    700   CONTINUE
          WRITE(6,506)
          DO600 I=1,MAXXY
          WRITE(6,300) XDARR(I,K),XARRAY(I,K),YARRAY(I,K)
    600   CONTINUE
    5     FORMAT(I6,5(I1,F6.3),5(I1,F6.3))
    500   FORMAT(1H1,'WHITAKER  LAKE')
    501   FORMAT(1H1,'MIRROR LAKE')
    502   FORMAT(1H1,'WHITESBURG BOAT DOCK')
    503   FORMAT(1H1,'WHEELER-DECATUR')
    504   FORMAT(1H1,'BROWNS FERRY')
      506 FORMAT(1X,' DATE',7X,'--------',6X,'-------')
      300 FORMAT(I7,6X,F7.3,6X,F7.3)
       40 FORMAT(1H1,'MONTHLY AVERAGES ')
       50 FORMAT(1H1,'THE FOLLOWING ARE QUARTERLY AVERAGES')
    C      PREPARE DATA TO CALCULATE STASTICS
           DO 2000 K= 1,6
          DO 1000 I=1,150
          IF (XDARR(I,K) .EQ. 0) GO TO 1000
          IF(XARRAY(I,K).GT.887.0)GO TO 1110
          NTXA=NTXA + 1
```

```
            NXA(K) = NXA(K)+1
            XARRAV(NTXA)=XARRAY(I,K)
      1110  CONTINUE
            IF(YARRAY(I,K).GT.887.0)GO TO 1120
            NTYA=NTYA+1
            NYA(K)=NYA(K)+1
            YARRAV(NTYA)=YARRAY(I,K)
      1120  CONTINUE
      1000  CONTINUE
      2000  CONTINUE
      C
      C     STSATICS FOR  5 SITES MIN,MAX,MEAN,STANDARD DEVIATION
            DO 3000 K= 1,5
            CALL CLMXMN(XARRAV(NSXA),NXA(K),MXXARR(K),MNXARR(K))
            XARRMN(K)=1.0
            CALL STDEV(XARRAV(NSXA),NXA(K),XARRMN(K),XARRSD(K))
            NSXA=NSXA+NXA(K)
            CALL CLMXMN(YARRAV(NSYA),NYA(K),MXYARR(K),MNYARR(K))
            YARRMN(K)=1.0
            CALL STDEV(YARRAV(NSYA),NYA(K),YARRMN(K),YARRSD(K))
            NSYA=NSYA+NYA(K)
      3000  CONTINUE
            CALL CLMXMN(XARRAV,NTXA,MXXA,MNXA)
            XAMN=1.0
            CALL STDEV(XARRAV,NTXA,XAMN,XASD)
            CALL CLMXMN(YARRAV,NTYA,MXYA,MNYA)
            YAMN=1.0
            CALL STDEV(YARRAV,NTYA,YAMN,YASD)
            WRITE(6,3001)
      3001  FORMAT('1',40X,'STATISTICAL OUTPUT'/)
            WRITE(6,3002)
      3002  FORMAT(9X,'-------',4X,'-------')
            DO4000 K=1,5
            GO TO (4010,4020,4030,4040,4050),K
      4010  CONTINUE
            WRITE    4011)
      4011  FORMAT(1X,'WHITAKER LAKE')
            GO TO 4060
      4020  CONTINUE
            WRITE(6,4021)
      4021  FORMAT(1X,'MIRROR LAKE')
            GO TO 4060
      4030  CONTINUE
            WRITE(6,4031)
      4031  FORMAT(1X,'WHITESBURG BOAT DOCK')
            GO TO 4060
      4040  CONTINUE
            WRITE(6,4041)
      4041  FORMAT(1X,'WHEELER-DECATUR')
            GO TO 4060
      4050  CONTINUE
            WRITE(6,4051)
      4051  FORMAT(1X,'BROWNS FERRY')
      4060  CONTINUE
            WRITE(6,4061) XARRMN(K),YARRMN(K)
      4061  FORMAT(3X,'MEAN',4X,2(F7.3,4X))
            WRITE(6,4062) XARRSD(K),YARRSD(K)

      4062  FORMAT(3X,'ST DEV ',2(F7.3,4X))
            WRITE(6,4063) MXXARR(K),MXYARR(K)
      4063  FORMAT(3X,'MAX VAL ',2(F7.3,4X))
            WRITE(6,4064) MNXARR(K),MNYARR(K)
      4064  FORMAT(3X,'MIN VAL',2(F7.3,4X))
      4000  CONTINUE
            WRITE(6,4066)
      4066  FORMAT(1X,'ALL DATA')
            WRITE(6,4061)XAMN,YAMN
            WRITE(6,4062)XASD,YASD
            WRITE(6,4063)MXXA,MXYA
            WRITE(6,4064)MNXA,MNYA
            RETURN
            END
```

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@END
@END IGNORED - IN CONTROL MODE
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ORIGINAL PAGE IS
OF POOR QUALITY

```
FANTASTIC*OLOROBE.MAIN3
      SUBROUTINE MAIN3
      REAL YABO,YANN,MXYA,MNYA
      REAL XABO,XANN,MXXA,MNXA
      REAL ZABO,ZANN,MXZA,MNZA
      REAL XANNAV(700),XANNSD(5),XANNMN(5),MXXANN(5),MNXANN(5)
      REAL YANNAV(700),YANNSD(5),YANNMN(5),MXYANN(5),MNYANN(5)
      REAL ZANNAV(700),ZANNSD(5),ZANNMN(5),MXZANN(5),MNZANN(5)
      INTEGER NXA(5),NSXA,NTXA
      INTEGER NYA(5),NSYA,NTYA
      INTEGER NZA(5),NSZA,NTZA
      INTEGER XN(5),YN(5),ZN(5)
      REAL TTEMP(5),TPH(5),TO2(5)
      INTEGER DATS,SITE(5)
      INTEGER XROWS(5),YROWS(5),ZROWS(5)
      INTEGER MONTBL(12)
      INTEGER XQRTDA(20,5),YQRTDA(20,5),ZQRTDA(20,5)
      INTEGER XYR(20,5),YYR(20,5),ZYR(20,5)
      REAL XQRTAV(20,5),YQRTAV(20,5),ZQRTAV(20,5)
      REAL XSUM(150,5),YSUM(150,5),ZSUM(150,5)
      INTEGER LXDIV(150,5),LYDIV(150,5),LZDIV(150,5)
      INTEGER XMONTH(150,5),YMONTH(150,5),ZMONTH(150,5)
      REAL XAVG(150,5),YAVG(150,5),ZAVG(150,5)
      INTEGER XDARR(150,5),YDARR(150,5),ZDARR(150,5)
      REAL XARRAY(150,5),YARRAY(150,5),ZARRAY(150,5)
      DATA NTXA,NTYA,NTZA/3*0/
      DATA NXA,NYA,NZA/15*0/
      DATA NSXA,NSYA,NSZA/3*1/
      COMMON
     *XANNAV,YANNAV,XSUM,YSUM,LXDIV,LYDIV,
     *XMONTH,YMONTH,XAVG,YAVG,XDARR,YDARR,
     *XARRAY,YARRAY,XQRTDA,YQRTDA,XYR,YYR,
     *XQRTAV,YQRTAV
      JX = 0
      KX = 0
      LX = 0
      MX = 0
      NX = 0
      JY = 0
      KY = 0
      LY = 0
      MY = 0
      NY = 0
      JZ = 0
      KZ = 0
      LZ = 0
      MZ = 0
      NZ = 0
      XCARDS = 0
      CALL ZERO(XDARR,XAVG,XMONTH,XROWS,XSUM,LXDIV,XQRTAV,XQRTDA,XYR,XN,
     *150,5)
      CALL ZERO(YDARR,YAVG,YMONTH,YROWS,YSUM,LYDIV,YQRTAV,YQRTDA,YYR,YN,
     *150,5)
      CALL ZERO(ZDARR,ZAVG,ZMONTH,ZROWS,ZSUM,LZDIV,ZQRTAV,ZQRTDA,ZYR,ZN,
     $150,5)
   20 READ(5,5,END=101)DATS,(SITE(I),TTEMP(I),I=1,5),(SITE(I),TPH (I),I=
     *1,5),(SITE(I),TO2(I),I=1,5)


      XCARDS=XCARDS+1
      CALL ARRAYS(DATS,TTEMP,SITE,JX,KX,LX,MX,NX,XARRAY,XDARR)
      CALL ARRAYS(DATS,TPH,SITE,JY,KY,LY,MY,NY,YARRAY,YDARR)
      CALL ARRAYS(DATS,TO2  ,SITE,JZ,KZ,LZ,MZ,NZ,ZARRAY,ZDARR)
      GO TO 20
  101 CONTINUE
      MAXXY = MAX0(JX,KX,LX,MX,NX,JY,KY,LY,MY,NY,JZ,KZ,LZ,MZ,NZ)
      CALL AVERAG(XARRAY,JX,KX,LX,MX,NX,XDARR,XAVG,XMONTH,XROWS,XSUM,LXD
     *IV)
      CALL AVERAG(YARRAY,JY,KY,LY,MY,NY,YDARR,YAVG,YMONTH,YROWS,YSUM,LYD
     *IV)
      CALL AVERAG(ZARRAY,JZ,KZ,LZ,MZ,NZ,ZDARR,ZAVG,ZMONTH,ZROWS,ZSUM,LZD
     *IV)
      MXXROW = MAX0(XROWS(1),XROWS(2),XROWS(3),XROWS(4),XROWS(5))
      MXYROW = MAX0(YROWS(1),YROWS(2),YROWS(3),YROWS(4),YROWS(5))
      MXZROW = MAX0(ZROWS(1),ZROWS(2),ZROWS(3),ZROWS(4),ZROWS(5))
      WRITE(6,40)
      CALL WRITE(XAVG,XMONTH,MXXROW,TAVG,1)
      WRITE(6,40)
      CALL WRITE(YAVG,YMONTH,MXYROW,TAVG,1)
      WRITE(6,40)
      CALL WRITE(ZAVG,ZMONTH,MXZROW,TAVG,1)
C*****SETS UP A TABLE SHOWING HOW MANY MONTHS TO BE INCLUDED IN A
      I=0
   30 CONTINUE
      DO 10 KJ=3,1,-1
      I=I+1
      MONTBL(I)=KJ
      IF(I.EQ.12) GO TO 20
   10 CONTINUE
      GO TO 30
   20 CONTINUE
C*****QUARTERLY AVERAGES
      CALL AVGQRT(XSUM,XMONTH,XROWS,MONTBL,XQRTAV,XYR,XQRTDA,XN,LXDIV)
      CALL AVGQRT(YSUM,YMONTH,YROWS,MONTBL,YQRTAV,YYR,YQRTDA,YN,LYDIV)
      CALL AVGQRT(ZSUM,ZMONTH,ZROWS,MONTBL,ZQRTAV,ZYR,ZQRTDA,ZN,LZDIV)
      MAXXN = MAX0(XN(1),XN(2),XN(3),XN(4),XN(5))
      MAXYN = MAX0(YN(1),YN(2),YN(3),YN(4),YN(5))
      MAXZN = MAX0(ZN(1),ZN(2),ZN(3),ZN(4),ZN(5))
      WRITE(6,50)
      CALL PRQAV(XQRTAV,XQRTDA,MAXXN,TQRTAV,1,XYR)
      WRITE(6,50)
      CALL PRQAV(YQRTAV,YQRTDA,MAXYN,TQRTAV,1,YYR)
      WRITE(6,50)
      CALL PRQAV(ZQRTAV,ZQRTDA,MAXZN,TQRTAV,1,ZYR)
      DO 600K=1,5
      GO TO (400,401,402,403,405),K
  400 WRITE(6,500)
      GO TO 700
  401 WRITE(6,501)
      GO TO 700
  402 WRITE(6,502)
      GO TO 700
  403 WRITE(6,503)
      GO TO 700
  405 WRITE(6,504)
  700 CONTINUE
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```
      WRITE(6,506)
      DO600 I=1,MARAY
      WRITE(6,300) XDARR(I,K),XARRAY(I,K),YARRAY(I,K),ZARRAY(I,K)
600   CONTINUE
    5 FORMAT(I6,10(1,F6.3),/,6X,5(I1,F6.3))
500   FORMAT(1H1,'WHITAKER  LAKE')
501   FORMAT(1H1,'MIRROR LAKE')
502   FORMAT(1H1,'WHITESBURG BOAT DOCK')
503   FORMAT(1H1,'WHEELER-DECATUR')
504   FORMAT(1H1,'BROWNS FERRY')
  506 FORMAT(1X,' DATE',7X,'-------',6X,'------',6X,'-------')
  300 FORMAT(I7,3(6X,F7.3))
   40 FORMAT(1H1,'MONTHLY AVERAGES ')
   50 FORMAT(1H1,'THE FOLLOWING ARE QUARTERLY AVERAGES')
C      PREPARE DATA TO CALCULATE STASTICS
       DO 2000 K= 1,5
      DO 1000 I=1,150
      IF (XDARR(I,K) .EQ. 0) GO TO 1000
      IF(XARRAY(I,K).GT.887.0)GO TO 1110
      NTXA=NTXA + 1
      NXA(K) = NXA(K)+1
      XARRAV(NTXA)=XARRAY(I,K)
 1110 CONTINUE
      IF(YARRAY(I,K).GT.887.0)GO TO 1120
      NTYA=NTYA+1
      NYA(K)=NYA(K)+1
      YARRAV(NTYA)=YARRAY(I,K)
 1120 CONTINUE
      IF(ZARRAY(I,K).GT.887.0) GO TO 1130
      NTZA=NTZA+1
      NZA(K)=NZA(K)+1
      ZARRAV(NTZA) = ZARRAY(I,K)
 1130 CONTINUE
 1000 CONTINUE
 2000 CONTINUE
C
C     STSATICS FOR  5 SITES MIN,MAX,MEAN,STANDARD DEVIATION
      DO 3000 K= 1,5
      CALL CLMXMN(XARRAV(NSXA),NXA(K),MXXARR(K),MNXARR(K))
      XARRMN(K)=1.0
      CALL STDEV(XARRAV(NSXA),NXA(K),XARRMN(K),XARRSD(K))
      NSXA=NSXA+NXA(K)
      CALL CLMXMN(YARRAV(NSYA),NYA(K),MXYARR(K),MNYARR(K))
      YARRMN(K)=1.0
      CALL STDEV(YARRAV(NSYA),NYA(K),YARRMN(K),YARRSD(K))
      NSYA=NSYA+NYA(K)
      CALL CLMXMN(ZARRAV(NSZA),NZA(K),MXZARR(K),MNZARR(K))
      ZARRMN(K)=1.0
      CALL STDEV(ZARRAV(NSZA),NZA(K),ZARRMN(K),ZARRSD(K))
      NSZA=NSZA+NZA(K)
 3000 CONTINUE
      CALL CLMXMN(XARRAV,NTXA,MXXA,MNXA)
      XAMN=1.0
      CALL STDEV(XARRAV,NTXA,XAMN,XASD)
      CALL CLMXMN(YARRAV,NTYA,MXYA,MNYA)
      YAMN=1.0
      CALL STDEV(YARRAV,NTYA,YAMN,YASD)

      CALL CLMXMN(ZARRAV,NTZA,MXZA,MNZA)
      ZAMN=1.0
      CALL STDEV(ZARRAV,NTZA,ZAMN,ZASD)
      WRITE(6,3001)
 3001 FORMAT('1',40X,'STATISTICAL OUTPUT'/)
      WRITE(6,3002)
 3002 FORMAT(9X,'-------',4X,'-------',4X,'-------')
      DO4000 K=1,5
      GO TO (4010,4020,4030,4040,4050),K
 4010 CONTINUE
      WRITE(6,4011)
 4011 FORMAT(1X,'WHITAKER LAKE')
      GO TO 4060
 4020 CONTINUE
      WRITE(6,4021)
 4021 FORMAT(1X,'MIRROR LAKE')
      GO TO 4060
 4030 CONTINUE
      WRITE(6,4031)
 4031 FORMAT(1X,'WHITESBURG BOAT DOCK')
      GO TO 4060
 4040 CONTINUE
      WRITE(6,4041)
 4041 FORMAT(1X,'WHEELER-DECATUR')
      GO TO 4060
 4050 CONTINUE
      WRITE(6,4051)
 4051 FORMAT(1X,'BROWNS FERRY')
 4060 CONTINUE
      WRITE(6,4061) XARRMN(K),YARRMN(K),ZARRMN(K)
 4061 FORMAT(3X,'MEAN',4X,3(F7.3,4X))
      WRITE(6,4062) XARRSD(K),YARRSD(K),ZARRSD(K)
 4062 FORMAT(3X,'ST DEV ',3(F7.3,4X))
      WRITE(6,4063) MXXARR(K),MXYARR(K),MXZARR(K)
 4063 FORMAT(3X,'MAX VAL',3(F7.3,4X))
      WRITE(6,4064) MNXARR(K),MNYARR(K),MNZARR(K)
 4064 FORMAT(3X,'MIN VAL',3(F7.3,4X))
 4000 CONTINUE
      WRITE(6,4066)
 4066 FORMAT(1X,'ALL DATA')
      WRITE (6,4061)XAMN,YAMN,ZAMN
      WRITE (6,4062)XASD,YASD,ZASD
      WRITE (6,4063)MXXA,MXYA,MXZA
      WRITE (6,4064)MNXA,MNYA,MNZA
      RETURN
      END

WEND
WEND IGNORED - IN CONTROL MODE
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FANTASTIC-UL*NOSE.MAIN6

```
      SUBROUTINE MAIN6
      REAL YASD,YAMN,MXYA,MNYA                                          UUUU   1
      REAL XASD,XAMN,MXXA,MNXA                                          UUUU   2
      REAL ZASD,ZAMN,MXZA,MNZA                                          UUUU   1
      REAL XANNAV(750),XANNSD(5),XANNMN(5),MXXANN(5),MNXANN(5)          UUUU   3
      REAL YANNAV(750),YANNSD(5),YANNMN(5),MXYANN(5),MNYANN(5)          UUUU   4
      REAL ZANNAV(750),ZANNSD(5),ZANNMN(5),MXZANN(5),MNZANN(5)          UUUU   4
      INTEGER NXA(5),NSXA,NTXA                                          UUUU   5
      INTEGER NYA(5),NSYA,NTYA                                          UUUU   6
      INTEGER NZA(5),NSZA,NTZA                                          UUUU   6
      INTEGER XN(5),YN(5),ZN(5)                                         UUUU   7
      REAL TTEMP(5),TPH(5),TO2(5)                                       UUUU   8
      INTEGER DATS,SITE(5)                                              UUUU   9
      INTEGER XROWS(5),YROWS(5),ZROWS(5)                                UUUU  10
      INTEGER MONTBL(12)                                                UUUU  11
      INTEGER XQRTDA(20,5),YQRTDA(20,5),ZQRTDA(20,5)                    UUUU  12
      INTEGER XYR(20,5),YYR(20,5),ZYR(20,5)                             UUUU  13
      REAL XQRTAV(20,5),YQRTAV(20,5),ZQRTAV(20,5)                       UUUU  14
      REAL XSUM(150,5),YSUM(150,5),ZSUM(150,5)                          UUUU  15
      INTEGER LXDIV(150,5),LYDIV(150,5),LZDIV(150,5)                    UUUU  16
      INTEGER XMONTH(150,5),YMONTH(150,5),ZMONTH(150,5)                 UUUU  17
      REAL XAVG(150,5),YAVG(150,5),ZAVG(150,5)                          UUUU  18
      INTEGER XDARR(150,5),YDARR(150,5),ZDARR(150,5)                    UUUU  19
      REAL XARRAY(150,5),YARRAY(150,5),ZARRAY(150,5)                    UUUU  20
      DATA NTXA,NTYA,NTZA/3*0/
      DATA NXA,NYA,NZA/15*0/
      DATA NSXA,NSYA,NSZA/3*1/
      INTEGER DAT2,SIT2(5)
      REAL THAND(5),TCAL(5),THAG(5)
      REAL HARRAY(150,5),CARRAY(150,5),MARRAY(150,5)
      INTEGER HDARR(150,5),CDARR(150,5),MDARR(150,5)
      REAL HAVG(150,5),CAVG(150,5),MAVG(150,5)
      INTEGER HMONTH(150,5),CMONTH(150,5),MMONTH(150,5),
     *HROWS(5),CROWS(5),MROWS(5)
      REAL HSUM(150,5),CSUM(150,5),MSUM(150,5)
      REAL HQRTAV(20,5),CQRTAV(20,5),MQRTAV(20,5)
      INTEGER HYR(20,5),CYR(20,5),MYR(20,5)
      INTEGER HQRTDA(20,5),CQRTDA(20,5),MQRTDA(20,5)
      INTEGER HN(5),CN(5),PN(5)
      INTEGER LHDIV(150,5),LCDIV(150,5),LMDIV(150,5)
      REAL HANNAV(750),HANNSD(5),HANNMN(5),MXHANN(5),MNHANN(5)
      REAL HASD,HAMN,MXHA,MNHA
      INTEGER NHA(5),NSHA,NTHA
      REAL CANNAV(750),CANNSD(5),CANNMN(5),MXCANN(5),MNCANN(5)
      REAL CASD,CAMN,MXCA,MNCA
      INTEGER NCA(5),NSCA,NTCA
      REAL MANNAV(750),MANNSD(5),MANNMN(5),MXMANN(5),MNMANN(5)
      REAL MASD,MAMN,MXMA,MNMA
      INTEGER NMA(5),NSMA,NTMA
      DATA NTHA,NTCA,NTMA/3*0/
      DATA NHA,NCA,NMA/15*0/
      DATA NSHA,NSCA,NSMA/3*1/
      COMMON
     *XANNAV,YANNAV,XSUM,YSUM,LXDIV,LYDIV,
     *XMONTH,YMONTH,XAVG,YAVG,XDARR,YDARR,
     *XARRAY,YARRAY,XQRTDA,YQRTDA,XYR,YYR,
     *XQRTAV,YQRTAV
      JX = 0                                                            UUUU  24
      KX = 0                                                            UUUU  25
      LX = 0                                                            UUUU  26
      MX = 0                                                            UUUU  27
      NX = 0                                                            UUUU  28
      JY = 0                                                            UUUU  29
      KY = 0                                                            UUUU  30
      LY = 0                                                            UUUU  31
      MY = 0                                                            UUUU  32
      NY = 0                                                            UUUU  33
      JZ = 0
      KZ = 0
      LZ = 0
      MZ = 0
      NZ = 0
      JN  =0
      KN  =0
      LN  =0
      MN  =0
      NN  =0
      JOP =0
      KOP =0
      LOP =0
      MOP =0
      NOP =0
      JTP =0
      KTP =0
      LTP =0
      MTP =0
      NTP =0
      XCARDS = 0                                                        UUUU  34
      JCARDS = 0
      CALL ZERO(XDARR,XAVG,XMONTH,XROWS,XSUM,LXDIV,XQRTAV,XQRTDA,XYR,XN,UUUU  35
     *150,5)                                                            UUUU  36
      CALL ZERO(YDARR,YAVG,YMONTH,YROWS,YSUM,LYDIV,YQRTAV,YQRTDA,YYR,YN,UUUU  37
     *150,5)                                                            UUUU  38
      CALL ZERO(ZDARR,ZAVG,ZMONTH,ZROWS,ZSUM,LZDIV,ZQRTAV,ZQRTDA,ZYR,ZN,UUUU  36
     $150,5)
   20 READ(5,5,END=101)DATS,(SITE(I),TTEMP(I),I=1,5),(SITE(I),TPH (I),I=UUUU  39
     *1,5),(SITE(I),TO2(I),I=1,5)
      XCARDS=XCARDS+1                                                   UUUU  41
      CALL ARRAYS(DATS,TTEMP,SITE,JX,KX,LX,MX,NX,XARRAY,XDARR)          UUUU  42
      CALL ARRAYS(DATS,TPH,SITE,JY,KY,LY,MY,NY,YARRAY,YDARR)            UUUU  43
      CALL ARRAYS(DATS,TO2  ,SITE,JZ,KZ,LZ,MZ,NZ,ZARRAY,ZDARR)          UUUU  42
      GO TO 20                                                          UUUU  44
  101 CONTINUE                                                          UUUU  45
      MAXXY = MAX0(JX,KX,LX,MX,NX,JY,KY,LY,MY,NY,JZ,KZ,LZ,MZ,NZ)
      CALL AVERAG(XARRAY,JX,KX,LX,MX,NX,XDARR,XAVG,XMONTH,XROWS,XSUM,LXDUUUU  46
     *IV)                                                               UUUU  47
      CALL AVERAG(YARRAY,JY,KY,LY,MY,NY,YDARR,YAVG,YMONTH,YROWS,YSUM,LYDUUUU  48
     *IV)                                                               UUUU  49
      CALL AVERAG(ZARRAY,JZ,KZ,LZ,MZ,NZ,ZDARR,ZAVG,ZMONTH,ZROWS,ZSUM,LZDUUUU  46
     *IV)
      MXXROW = MAX0(XROWS(1),XROWS(2),XROWS(3),XROWS(4),XROWS(5))       UUUU  50
      MXYROW = MAX0(YROWS(1),YROWS(2),YROWS(3),YROWS(4),YROWS(5))       UUUU  51
      MXZROW = MAX0(ZROWS(1),ZROWS(2),ZROWS(3),ZROWS(4),ZROWS(5))       UUUU  50
```

```
      WRITE(6,40)
      CALL WRITE(XAVG,XMONTH,MXXROW,TAVG,1)
      WRITE(6,40)
      CALL WRITE(YAVG,YMONTH,MXYROW,TAVG,1)
      WRITE(6,40)
      CALL WRITE(ZAVG,ZMONTH,MXZROW,TAVG,1)
C*****SETS UP A TABLE SHOWING HOW MANY MONTHS TO BE INCLUDED IN A
      I=0
   30 CONTINUE
      DO 10 KJ=3,1,-1
      I=I+1
      MONTBL(I)=KJ
      IF(I.EQ.12) GO TO 20
   10 CONTINUE
      GO TO 30
   20 CONTINUE
C*****QUARTERLY AVERAGES
      CALL AVGQRT(XSUM,XMONTH,XROWS,MONTBL,XQRTAV,XYR,XQRTDA,XN,LXDIV)
      CALL AVGQRT(YSUM,YMONTH,YROWS,MONTBL,YQRTAV,YYR,YQRTDA,YN,LYDIV)
      CALL AVGQRT(ZSUM,ZMONTH,ZROWS,MONTBL,ZQRTAV,ZYR,ZQRTDA,ZN,LZDIV)
      MAXXN = MAX0(XN(1),XN(2),XN(3),XN(4),XN(5))
      MAXYN = MAX0(YN(1),YN(2),YN(3),YN(4),YN(5))
      MAXZN = MAX0(ZN(1),ZN(2),ZN(3),ZN(4),ZN(5))
      WRITE(6,50)
      CALL PRQAV(XQRTAV,XQRTDA,MAXXN,TQRTAV,1,XYR)
      WRITE(6,50)
      CALL PRQAV(YQRTAV,YQRTDA,MAXYN,TQRTAV,1,YYR)
      WRITE(6,50)
      CALL PRQAV(ZQRTAV,ZQRTDA,MAXZN,TQRTAV,1,ZYR)
      CALL ZERO(MDARR,MAVG,MMONTH,MROWS,MSUM,LMDIV,MQRTAV,MQRTDA,MYR,PN,
     $150,5)
      CALL ZERO( HDARR, HAVG,HMONTH, HROWS, HSUM, LHDIV,
     *           HQRTAV,HQRTDA, HYR, HN,150,5)
      CALL ZERO( CDARR, CAVG,CMONTH, CROWS, CSUM, LCDIV,
     *           CQRTAV,CQRTDA, CYR, CN,150,5)
   25 READ(5,5,END=102) DAT2,(SIT2(I),THARD(I),I=1,5),(SIT2(I),TCAL(I),I
     *=1,5),(SIT2(I),TMAG(I),I=1,5)
      JCARDS = JCARDS+1
      CALL ARRAYS(DAT2,THARD,SIT2,JN,KN,LN,MN,NN,HARRAY,HDARR)
      CALL ARRAYS(DAT2, TCAL,SIT2,JOP,KOP,LOP,MOP,NOP,CARRAY,CDARR)
      CALL ARRAYS(DAT2, TMAG,SIT2,JTP,KTP,LTP,MTP,NTP,MARRAY,MDARR)
      GO TO 25
102   CONTINUE
      CALL AVERAG(HARRAY,JN,KN,LN,MN,NN,HDARR,HAVG,HMONTH,HROWS,HSUM,LHD
     *IV)
      CALL AVERAG(CARRAY,JOP,KOP,LOP,MOP,NOP,CDARR,CAVG,CMONTH,CROWS,CSU
     *M,LCDIV)
      CALL AVERAG(MARRAY,JTP,KTP,LTP,MTP,NTP,MDARR,MAVG,MMONTH,MROWS,MSU
     *M,LMDIV)
      MXHROW = MAX0(HROWS(1),HROWS(2),HROWS(3),HROWS(4),HROWS(5))
      MXCROW = MAX0(CROWS(1),CROWS(2),CROWS(3),CROWS(4),CROWS(5))
      MXMROW = MAX0(MROWS(1),MROWS(2),MROWS(3),MROWS(4),MROWS(5))
      WRITE(6,40)
      CALL WRITE (HAVG,HMONTH,MXHROW,TAVG,1)
      WRITE(6,40)
      CALL WRITE (CAVG,CMONTH,MXCROW,TAVG,1)
      WRITE(6,40)
      CALL WRITE (MAVG,MMONTH,MXMROW,TAVG,1)
      CALL AVGQRT(HSUM,HMONTH,HROWS,MONTBL,HQRTAV,HYR,HQRTDA,HN,LHDIV)
      CALL AVGQRT(CSUM,CMONTH,CROWS,MONTBL,CQRTAV,CYR,CQRTDA,CN,LCDIV)
      CALL AVGQRT(MSUM,MMONTH,MROWS,MONTBL,MQRTAV,MYR,MQRTDA,PN,LMDIV)
      MAXHN = MAX0(HN(1),HN(2),HN(3),HN(4),HN(5))
      MAXCN = MAX0(CN(1),CN(2),CN(3),CN(4),CN(5))
      MAXMN = MAX0(PN(1),PN(2),PN(3),PN(4),PN(5))
      WRITE(6,50)
      CALL PRQAV(HQRTAV,HQRTDA,MAXHN,TQRTAV,1,HYR)
      WRITE(6,50)
      CALL PRQAV(CQRTAV,CQRTDA,MAXCN,TQRTAV,1,CYR)
      WRITE(6,50)
      CALL PRQAV(MQRTAV,MQRTDA,MAXMN,TQRTAV,1,MYR)
      DO 600K=1,5
      GO TO (400,401,402,403,405),K
400   WRITE(6,500)
      GO TO 700
401   WRITE(6,501)
      GO TO 700
402   WRITE(6,502)
      GO TO 700
403   WRITE(6,503)
      GO TO 700
405   WRITE(6,504)
700   CONTINUE
      WRITE(6,506)
      DO600 I=1,MAXXY
      WRITE(6,300)XDARR(I,K),MARRAY(I,K),XARRAY(I,K),HARRAY(I,K),YARRAY(
     *I,K),CARRAY(I,K),ZARRAY(I,K)
600   CONTINUE
    5 FORMAT(I6,10(I1,F6.3),/,6X,5(I1,F6.3))
500   FORMAT(1H1,'WHITAKER  LAKE')
501   FORMAT(1H1,'MIRROR LAKE')
502   FORMAT(1H1,'WHITESBURG BOAT DOCK')
503   FORMAT(1H1,'WHEELER-DECATUR')
504   FORMAT(1H1,'BROWNS FERRY')
  506 FORMAT(1X,'DATE',7X,'TEMP F ',6X,'TL / C ',6X,'MAX DO',6X,' % DO '
     *,6X,'PPM DO ',6X,'    PH  ')
  300 FORMAT(I7,6(6X,F7.3))
   40 FORMAT(1H1,'MONTHLY AVERAGES ')
   50 FORMAT(1H1,'THE FOLLOWING ARE QUARTERLY AVERAGES')
C       PREPARE DATA TO CALCULATE STASTICS
       DO 2000 K= 1,5
      DO 1000 I=1,150
      IF (XDARR(I,K) .EQ. 0) GO TO 1000
      IF(XARRAY(I,K).GT.887.0)GO TO 1110
      NTXA=NTXA + 1
      NXA(K) = NXA(K)+1
      XARRAV(NTXA)=XARRAY(I,K)
 1110 CONTINUE
      IF(YARRAY(I,K).GT.887.0)GO TO 1120
      NTYA=NTYA+1
      NYA(K)=NYA(K)+1
      YARRAV(NTYA)=YARRAY(I,K)
 1120 CONTINUE
      IF(ZARRAY(I,K).GT.887.0) GO TO 1130
      NTZA=NTZA+1
```

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OF POOR QUALITY

```
      NZA(K)=NZA(K)+1
      ZARRAV(NTZA) = ZARRAY(I,K)
 1120 CONTINUE
      IF(HARRAY(I,K).GT.887.0) GO TO 1030
      NTHA=NTHA+1
      NHA(K)=NHA(K)+1
      HARRAV(NTHA)=HARRAY(I,K)
 1030 CONTINUE
      IF(CARRAY(I,K).GT.887.0) GO TO 1040
      NTCA=NTCA+1
      NCA(K)=NCA(K)+1
      CARRAV(NTCA)=CARRAY(I,K)
 1040 CONTINUE
      IF(MARRAY(I,K).GT.887.0) GO TO 1050
      NTMA=NTMA+1
      NMA(K)=NMA(K)+1
      MARRAV(NTMA) = MARRAY(I,K)
 1050 CONTINUE
 1000 CONTINUE                                                          0000 118
 2000 CONTINUE                                                          0000 119
C                                                                       0000 120
C     STSATICS FOR  5 SITES MIN,MAX,MEAN,STANDARD DEVIATION             0000 121
      DO 3000 K= 1,5                                                    0000 122
      IF(NXA(K) .LT. 1) GO TO 2100
      CALL CLMXMN(XARRAV(NSXA),NXA(K),MXXARR(K),MNXARR(K))              0000 123
      XARRMN(K)=1.0                                                     0000 124
      CALL STDEV(XARRAV(NSXA),NXA(K),XARRMN(K),XARRSD(K))               0000 125
      NSXA=NSXA+NXA(K)                                                  0000 126
 2100 IF(NYA(K) .LT. 1) GO TO 2200
      CALL CLMXMN(YARRAV(NSYA),NYA(K),MXYARR(K),MNYARR(K))              0000 127
      YARRMN(K)=1.0                                                     0000 128
      CALL STDEV(YARRAV(NSYA),NYA(K),YARRMN(K),YARRSD(K))               0000 129
      NSYA=NSYA+NYA(K)                                                  0000 130
 2200 IF(NZA(K) .LT. 1) GO TO 2300
      CALL CLMXMN(ZARRAV(NSZA),NZA(K),MXZARR(K),MNZARR(K))
      ZARRMN(K)=1.0
      CALL STDEV(ZARRAV(NSZA),NZA(K),ZARRMN(K),ZARRSD(K))
      NSZA=NSZA+NZA(K)
 2300 IF(NHA(K) .LT. 1) GO TO 2400
      CALL CLMXMN(HARRAV(NSHA),NHA(K),MXHARR(K),MNHARR(K))
      HARRMN(K)=1.0
      CALL STDEV(HARRAV(NSHA),NHA(K),HARRMN(K),HARRSD(K))
      NSHA=NSHA+NHA(K)
 2400 IF(NCA(K) .LT. 1) GO TO 2500
      CALL CLMXMN(CARRAV(NSCA),NCA(K),MXCARR(K),MNCARR(K))
      CARRMN(K)=1.0
      CALL STDEV(CARRAV(NSCA),NCA(K),CARRMN(K),CARRSD(K))
      NSCA=NSCA+NCA(K)
 2500 IF(NMA(K) .LT. 1) GO TO 3000
      CALL CLMXMN(MARRAV(NSMA),NMA(K),MXMARR(K),MNMARR(K))
      MARRMN(K)=1.0
      CALL STDEV(MARRAV(NSMA),NMA(K),MARRMN(K),MARRSD(K))
      NSMA=NSMA+NMA(K)
 3000 CONTINUE                                                          0000 131
      CALL CLMXMN(XARRAV,NTXA,MXXA,MNXA)                                0000 132
      XAMN=1.0                                                          0000 133
      CALL STDEV(XARRAV,NTXA,XAMN,XASD)                                 0000 134

      CALL CLMXMN(YARRAV,NTYA,MXYA,MNYA)                                0000 135
      YAMN=1.0                                                          0000 136
      CALL STDEV(YARRAV,NTYA,YAMN,YASD)                                 0000 137
      CALL CLMXMN(ZARRAV,NTZA,MXZA,MNZA)
      ZAMN=1.0
      CALL STDEV(ZARRAV,NTZA,ZAMN,ZASD)
      CALL CLMXMN(HARRAV,NTHA,MXHA,MNHA)
      HAMN=1.0
      CALL STDEV(HARRAV,NTHA,HAMN,HASD)
      CALL CLMXMN(CARRAV,NTCA,MXCA,MNCA)
      CAMN=1.0
      CALL STDEV(CARRAV,NTCA,CAMN,CASD)
      CALL CLMXMN(MARRAV,NTMA,MXMA,MNMA)
      MAMN=1.0
      CALL STDEV(MARRAV,NTMA,MAMN,MASD)
      WRITE(6,3001)                                                     0000 138
 3001 FORMAT('1',40X,'STATISTICAL OUTPUT'/)                             0000 139
      WRITE(6,3002)                                                     0000 140
 3002 FORMAT          (10X,'TEMP F ',4X,'TEMP C ',4X,'MAX DO',4X,' % DO '
     *,4X,'PPM DO ',4X,'   PH   ')
      DO4000 K=1,5                                                      0000 142
      GO TO (4010,4020,4030,4040,4050),K                                0000 143
 4010 CONTINUE                                                          0000 144
      WRITE(6,4011)                                                     0000 145
 4011 FORMAT(1X,'WHITAKER LAKE')                                        0000 146
      GO TO 4060                                                        0000 147
 4020 CONTINUE                                                          0000 148
      WRITE(6,4021)                                                     0000 149
 4021 FORMAT(1X,'MIRROR LAKE')                                          0000 150
      GO TO 4060                                                        0000 151
 4030 CONTINUE                                                          0000 152
      WRITE(6,4031)                                                     0000 153
 4031 FORMAT(1X,'WHITESBURG BOAT DOCK')                                 0000 154
      GO TO 4060                                                        0000 155
 4040 CONTINUE                                                          0000 156
      WRITE(6,4041)                                                     0000 157
 4041 FORMAT(1X,'WHEELER-DECATUR')                                      0000 158
      GO TO 4060                                                        0000 159
 4050 CONTINUE                                                          0000 160
      WRITE(6,4051)                                                     0000 161
 4051 FORMAT(1X,'BROWNS FERRY')                                         0000 162
 4060 CONTINUE                                                          0000 163
      WRITE(6,4061)MARRMN(K),XARRMN(K),HARRMN(K),YARRMN(K),CARRMN(K),ZAR
     *RMN(K)
 4061 FORMAT(3X,'MEAN',4X,6(F7.3,4X))
      WRITE(6,4062)MARRSD(K),XARRSD(K),HARRSD(K),YARRSD(K),CARRSD(K),ZAR
     *RSD(K)
 4062 FORMAT(3X,'ST DEV ',6(F7.3,4X))
      WRITE(6,4063)MXMARR(K),MXXARR(K),MXHARR(K),MXYARR(K),MXCARR(K),MXZ
     *ARR(K)
 4063 FORMAT(3X,'MAX VAL',6(F7.3,4X))
      WRITE(6,4064)MNMARR(K),MNXARR(K),MNHARR(K),MNYARR(K),MNCARR(K),MNZ
     *ARR(K)
 4064 FORMAT(3X,'MIN VAL',6(F7.3,4X))
 4000 CONTINUE                                                          0000 172
      WRITE(6,4066)                                                     0000 173
 4066 FORMAT(1X,'ALL DATA')                                             0000 174
```

```
      WRITE(6,4061)MAMN,XAMN,HAMN,YAMN,CAMN,ZAMN
      WRITE(6,4062)MASD,XASD,HASD,YASD,CASD,ZASD
      WRITE(6,4063)MXMA,MXXA,MXHA,MXYA,MXCA,MXZA
      WRITE(6,4064)MNMA,MNXA,MNHA,MNYA,MNCA,MNZA
      RETURN
      END
```

```
FANTASTIC-DC*ROSE.WRITE
      SUBROUTINE WRITE(VARRAY,VDATE,NUM,VTARR,KOUNT)
C*********************************************************************
C
C*****THIS ROUTINE PRINTS OUT PARAMETER VALUES UNDER CORRESPONDING SITES
C
C        LIST ELEMENTS
C          VARRAY: DATA VALUES
C          VDATE: DATE ARRAY(YR,MO,DAY)
C          NUM: NUMBER  OF ROWS TO PRINT(MAX. NUM. OF ALL SITES)
C          VTARR: TEMPERATURE DATA TO BE PRINTED IN PARENTHESES FOLLOWING
C                 OTHER READINGS
C          KOUNT: KOUNT=1:PRINT ONLY VARRAY
C                 KOUNT=0:PRINT TEMP. READINGS IN PAREN.AFTER VARRAY DATA
C
C*********************************************************************
      DIMENSION VARRAY(150,5),VTARR(150,5)
      INTEGER VDATE(150,5)
      WRITE(6,1)
      IF(KOUNT.NE.1) GO TO 10
      WRITE (6,2)((VDATE(I,J),VARRAY(I,J),J=1,5),I=1,NUM)
      RETURN
   10 WRITE(6,3)((VDATE(I,J),VARRAY(I,J),VTARR(I,J),J=1,5),I=1,NUM)
    1 FORMAT(1H0,'DATE',4X,'WHITTACKER LAKE',4X,'DATE',5X,'MIRROR LAKE',
     *6X,'DATE',3X,'WHITESBURG BD',6X,'DATE',3X,'WHEELER-DECATUR',4X,'DA
     *TE',2X,'BROWNS FERRY',//)
    2 FORMAT(5(I7,6X,F6.2,6X))
    3 FORMAT(    5(I7,2X,F7.3,'(',F6.2,')',2X))
      RETURN
      END
```

```
FANTASTIC-DC*ROSE.ZERO
      SUBROUTINE ZERO(ARR,AVG,MTH,IROW,SUM,LDV,QAV,IQDA,IYR,N,NR,NS)
      DIMENSION ARR(NR,1),AVG(NR,1),MTH(NR,1),SUM(NR,1),LDV(NR,1),
     *             QAV(20,1),IQDA(20,1),IYR(20,1),IROW(1),N(1)
      DO 30 K=1,NS
      IROW(K)=0
      N(K)=0
      DO 10 I=1,NR
      ARR(I,K)=0.0
      AVG(I,K)=0.0
      MTH(I,K)=0
      SUM(I,K)=0.0
      LDV(I,K)=0
   10 CONTINUE
      DO 20 I=1,20
      QAV(I,K)=0.0
      IQDA(I,K)=0.0
      IYR(I,K)=0.0
   20 CONTINUE
   30 CONTINUE
      RETURN
      END
```

```
FANTASTIC-DC*ROSE.CLMXMN
      SUBROUTINE CLMXMN(ARR,NN,ARRMX,ARRMN)
      DIMENSION ARR(1)
      ARRMX=-1.0E38
      ARRMN= 1.0E38
      DO 10  I=1,NN
      ARRMX=AMAX1(ARRMX,ARR(I))
      ARRMN=AMIN1(ARRMN,ARR(I))
   10 CONTINUE
      RETURN
      END

@END
@END IGNORED - IN CONTROL MODE
```

```
FANTASTIC-DC*ROSE.ARRAYI
      SUBROUTINE ARRAYI(VDATE,VALUE,VSITE,J,K,L,M,N,VARRAY,DARRAY)       ARRI   1
C*****************************************************,*******************ARRI   2
                                                                         ARRI   3
C                                                                        ARRI   4
C*****THIS ROUTINE ARRANGES THE DATA INTO SEPARATE ARRAYS WITH THE 5     ARRI   5
C      SITES CORRESPONDING TO 5 ROWS                                     ARRI   6
C       LIST ELEMENTS:                                                   ARRI   7
C          VDATE: ORIGINAL DATE (YR.,MO,DAY)                             ARRI   8
C          VALUE: DATA VALUE                                             ARRI   9
C          VSITE: SITE NUMBER                                            ARRI  10
C          J,K,L,M,N: NUMBER OF DATA VALUES UNDER EACH SITE              ARRI  11
C          VARRAY: DATA VALUES ARRAYED                                   ARRI  12
C          TDARR: CORRESPONDING DATE ARRAY (YR,MO,DAY)                   ARRI  13
C                                                                        ARRI  14
C*****************************************************,*******************ARRI  15
      DIMENSION VALUE(5),VARRAY(150,5)                                   ARRI  16
      INTEGER VSITE(5),VDATE  ,DARRAY(150,5),VALUE,TESVAL                ARRI  17
      DO 10 I=1,5                                                        ARRI  18
C                                                                        ARRI  19
C*****TESTS FOR BLANK DATA POSITION                                      ARRI  20
      ITEST=0                                                            ARRI  21
      TESVAL = VALUE(I)                                                  ARRI  22
      ITEST = FLD(0,3,TESVAL)                                            ARRI  23
      IF(ITEST.EQ.7)GO TO 10                                             ARRI  24
    6 CONTINUE                                                           ARRI  25
      ISITE = VSITE(I)                                                   ARRI  26
C                                                                        ARRI  27
C*****BRANCH ON SITE NUMBER TO PROPER SITE POSTION IN ARRAY              ARRI  28
      GO TO (1,2,3,4,5),ISITE                                            ARRI  29
    1 CONTINUE                                                           ARRI  30
      J= J+1                                                             ARRI  31
      VARRAY(J,1) = VALUE(I)                                             ARRI  32
      DARRAY(J,1) = VDATE                                                ARRI  33
      GO TO 10                                                           ARRI  34
    2 CONTINUE                                                           ARRI  35
      K= K+1                                                             ARRI  36
      VARRAY(K,2) = VALUE(I)                                             ARRI  37
      DARRAY(K,2) = VDATE                                                ARRI  38
      GO TO 10                                                           ARRI  39
    3 CONTINUE                                                           ARRI  40
      L= L+1                                                             ARRI  41
      VARRAY(L,3) = VALUE(I)                                             ARRI  42
      DARRAY(L,3) = VDATE                                                ARRI  43
      GO TO 10                                                           ARRI  44
    4 CONTINUE                                                           ARRI  45
      M= M+1                                                             ARRI  46
      VARRAY(M,4) = VALUE(I)                                             ARRI  47
      DARRAY(M,4) = VDATE                                                ARRI  48
      GO TO 10                                                           ARRI  49
    5 CONTINUE                                                           ARRI  50
      N= N+1                                                             ARRI  51
      VARRAY(N,5) = VALUE(I)                                             ARRI  52
      DARRAY(N,5) = VDATE                                                ARRI  53
   10 CONTINUE                                                           ARRI  54
      RETURN                                                             ARRI  54
      END                                                                ARRI  55
```

```
FANTASTIC-DC*ROSE.ARRAYS
      SUBROUTINE ARRAYS(VDATE,VALUE,VSITE,J,K,L,M,N,VARRAY,DARRAY)       ARRF   1
C*****************************************************,*******************ARRF   2
                                                                         ARRF   3
C                                                                        ARRF   4
C*****THIS ROUTINE ARRANGES THE DATA INTO SEPARATE ARRAYS WITH THE 5     ARRF   5
C      SITES CORRESPONDING TO 5 ROWS                                     ARRF   6
C       LIST ELEMENTS:                                                   ARRF   7
C          VDATE: ORIGINAL DATE (YR.,MO,DAY)                             ARRF   8
C          VALUE: DATA VALUE                                             ARRF   9
C          VSITE: SITE NUMBER                                            ARRF  10
C          J,K,L,M,N: NUMBER OF DATA VALUES UNDER EACH SITE              ARRF  11
C          VARRAY: DATA VALUES ARRAYED                                   ARRF  12
C          TDARR: CORRESPONDING DATE ARRAY (YR,MO,DAY)                   ARRF  13
C                                                                        ARRF  14
C*****************************************************,*******************ARRF  15
      DIMENSION VALUE(5),VARRAY(150,5)                                   ARRF  16
      INTEGER VSITE(5),VDATE  ,DARRAY(150,5)                             ARRF  17
      DO 10 I=1,5                                                        ARRF  18
C                                                                        ARRF  19
C*****TESTS FOR BLANK DATA POSITION                                      ARRF  20
      ITEST=0                                                            ARRF  21
      TESVAL = VALUE(I)                                                  ARRF  22
      ITEST = FLD(0,3,TESVAL)                                            ARRF  23
      IF(ITEST.EQ.7)GO TO 10                                             ARRF  24
    6 CONTINUE                                                           ARRF  25
      ISITE = VSITE(I)                                                   ARRF  26
C                                                                        ARRF  27
C*****BRANCH ON SITE NUMBER TO PROPER SITE POSTION IN ARRAY              ARRF  28
      GO TO (1,2,3,4,5),ISITE                                            ARRF  29
    1 CONTINUE                                                           ARRF  30
      J= J+1                                                             ARRF  31
      VARRAY(J,1) = VALUE(I)                                             ARRF  32
      DARRAY(J,1) = VDATE                                                ARRF  33
      GO TO 10                                                           ARRF  34
    2 CONTINUE                                                           ARRF  35
      K= K+1                                                             ARRF  36
      VARRAY(K,2) = VALUE(I)                                             ARRF  37
      DARRAY(K,2) = VDATE                                                ARRF  38
      GO TO 10                                                           ARRF  39
    3 CONTINUE                                                           ARRF  40
      L= L+1                                                             ARRF  41
      VARRAY(L,3) = VALUE(I)                                             ARRF  42
      DARRAY(L,3) = VDATE                                                ARRF  43
      GO TO 10                                                           ARRF  44
    4 CONTINUE                                                           ARRF  45
      M= M+1                                                             ARRF  46
      VARRAY(M,4) = VALUE(I)                                             ARRF  47
      DARRAY(M,4) = VDATE                                                ARRF  48
      GO TO 10                                                           ARRF  49
    5 CONTINUE                                                           ARRF  50
      N= N+1                                                             ARRF  51
      VARRAY(N,5) = VALUE(I)                                             ARRF  52
      DARRAY(N,5) = VDATE                                                ARRF  53
   10 CONTINUE                                                           ARRF  53
      RETURN                                                             ARRF  54
      END                                                                ARRF  55
```

```
C PROGRAM DECISION READS THE PARAMETER CARD (THE FIRST CARD IN EACH DATA DECK)
C TO DETERMINE THE NUMBER OF VARIABLES.  THIS NUMBER MAY EITHER BE A 2, 3, OR 6.
C USING THIS VALUE, PROGRAM DECISION THEN CALLS MAIN2,MAIN3, OR MAIN6.
      READ(5,500,END=777)ICOUNT
 500  FORMAT(I1)
      IF(ICOUNT .EQ. 6) GO TO 1
      IF(ICOUNT .EQ. 2) GO TO 2
      IF(ICOUNT .EQ. 3) GO TO 3
      WRITE(6,600)
  600 FORMAT(' ','NO PARAMETER CARD IN DATA FILE')
  777 STOP
  1    CALL MAIN6
        GO TO 777
 2    CALL MAIN2
        GO TO 777
 3    CALL MAIN3
        GO TO 777
      END




      SUBROUTINE AVERAG(VALUE,NUMJ,NUMK,NUML,NUMM,NUMN,NDATE,AVG,VMONTH,
     *ROWNUM,QSUM,LDIV)
C*****************************************************************
C
C*****THIS ROUTINE AVERAGES THE DATA READINGS OF EACH MONTH
C
C       LIST ELEMENTS:
C         VALUE: DATA FROM ARRAY
C         NUMJ,NUMK,NUML,NUMM,NUMN:NUMBER OF DATA VALUES AT EACH SITE
C         NDATE: DATE ARRAY (YR,MO,DAY)
C         AVG: MONTHLY AVERAGE ARRAY
C         VMONTH: NEW MONTH DATE ARRAY (YR,MO)
C         ROWNUM: ARRAY OF NUMBER OF AVERAGES UNDER EACH SITE
C         SUM: ARRAY OF MONTHLY SUMS OF DATA (FOR USE IN QUARTERLY AVERAGE)
C         LDIV: ARRAY OF NUMBER OF VALUES SUMMED EACH MONTH (FOR USE AS THE
C               DIVISOR IN THE QUARTERLY AVERAGES ROUTINE)
C
C*********************************************************************
      DIMENSION MONTH(150),NDATE(150,5),VALUE(150,5),AVG(150,5),QSUM(150
     *,5),LDIV(150,5)
      INTEGER VMONTH(150,5),ROWNUM(5)
C     DO ALL SITES WHILE IN ROUTINE
      DO 100 J=1,5
      GO TO (3,6,7,8,9),J
    3 NO = NUMJ-1
      GO TO 20
    6 NO = NUMK-1
      GO TO 20
    7 NO = NUML-1
      GO TO 20
    8 NO = NUMM-1
      GO TO 20
    9 NO = NUMN-1
   20 CONTINUE
C     SITE NUMBER (ALSO ROW NO.) FOR AVERAGE ARRAYS
      M = 1
C     ROW COUNTER
      I = 1
   22 CONTINUE
      L = 0
      SUM = 0
C     TEST FOR NO READING CONDITION(888. OR 999.)
      IF (VALUE(I,J)-888.)50,24,50
   50 CONTINUE
      IF(VALUE(I,J)-999.)21,24,21
   21 CONTINUE
C     OBTAINS SUM OF VALUES FOR EACH MONTH
      SUM=SUM + VALUE(I,J)
C     COUNTER USED FOR DIVISOR IN AVERAGE
      L =1
   24 CONTINUE
    1 CONTINUE
C     CONVERT DATE TO FIELD DATA
      ENCODE(30,ICHAR)NDATE(I,J)
C     CONVERT NEXT DATE TO FIELD DATA
      ENCODE(30,I2CHAR)NDATE(I+1,J)
   30 FORMAT(I6)
C     ISOLATE MONTH
      MONTH(I) = FLD(24,12,ICHAR)
      IF(I.GT.NO) GO TO 2
C     ISOLATE SUCCEEDING MONTH
      MONTH(I+1) = FLD(24,12,I2CHAR)
C     TEST TO SEE IF MONTHS ARE THE SAME
      IF (MONTH(I) .NE. MONTH(I+1)) GO TO 2
C     TEST FOR A NO READING CONDITION
      IF (VALUE(I+1,J)-888.)51,4,51
   51 CONTINUE
      IF (VALUE(I+1,J)-999.) 5,4,5
C     FINISHES SUMMING OF THE MONTH
    5 SUM = SUM + VALUE(I+1,J)
      L = L+1
    4 CONTINUE
C     TEST FOR COMPLETION OF THE SITE
      IF(I.EQ.NO) GO TO 10
      I=I+1
      GO TO 1
   10 CONTINUE
      I=I+1
C     CALCULATE AVERAGE
    2 AVG(M,J) = SUM/L
C     SAVE DIVISOR AND SUM FOR QUARTERLY AVERAGE
      LDIV(M,J)=L
      QSUM(M,J) = SUM
C     PACK MONTH INTO DATE FOLLOWING YEAR
      FLD(12,12,ICHAR)          = FLD(24,12,MONTH(I))
C     BLANK OUT DAY IN DATE
      FLD(24,12,ICHAR)          = ' '
C     CONVERT DATE (NOW YR,MO ONLY) TO INTEGER
      DECODE(30,ICHAR) VMONTH(M,J)
      M = M+ 1
C     TEST FOR SITE COMPLETION
      IF(I.GT.NO) GO TO 200
      I=I+1
      GO TO 22
  200 CONTINUE
C     STORES THE NUMBER OF AVERAGES OF EACH SITE
      ROWNUM(J) =M-1
  100 CONTINUE
      RETURN
      END
```

```
      SUBROUTINE AVGQRT(VARRAY,DATE,NUMROW,TABTBL,QRTAVG,YEAR,QRTDAT,NM,
     *LQDIV)
C*****************************************************************************
C
C*****THIS ROUTINE FINDS THE QUARTERLY AVERAGE OF THE DATE. MUST BE RUN WITH
C     MONTHLY AVERAGE ROUTINE FIRST.
C
C      LIST ELEMENTS:
C        VARRAY: ARRAY OF SUMS GATHERED KROM THE AVERAGE ROUTINE
C        DATE: DATES FORMED FROM AVERAGE ROUTINE(YR,MO)
C        NUMROW: NUMBER OF VALUES FOR EACH SITE
C        TABTL: TABLE DETERMINING NUMBER OF MONTHS TO BE SUMMED IN A QUARTER
C        BEGINNING WITH ANY MONTH.
C        QRTAVG: QUARTERLY AVERAGES
C        YEAR: YEAR ARRAY
C        QRTDAT: DATE OF QUARTERLY AVERAGE SHOWING YR AND ANY MONTHS INCLUDED IN
C        AVERAGE.
C        NM: ROW COUNT FOR THE SITES
C        LQDIV: DIVISOR ARRAY CARRIED ACROSS FROM THE AVERAGE ROUTINE
C
C*****************************************************************************
      DIMENSION QRTAVG(20,5) ,VARRAY(150,5),NM(5),NUMROW(5),LQDIV(150,5)
      INTEGER DATE(150,5),TABTBL(12),QRTCNT,YR1,YR2,YR3,YEAR(20,5) ,QRTD
     *AT(20,5)
C     DO ALL SITES
      DO 1 K=1 ,5
C     SITE COUNTER FOR QUARTERLY AVERAGE ARRAY
      M=0
C     SITE COUNTER FOR SUM AND DIVISOR ARRAY
      L=0
5     CONTINUE
C     TEST FOR COMPLETION OF SITE
      IF(L.GE.NUMROW(K)) GO TO 100
C     CONVERT (YR/MO)DATE TO FIELD DATA
      ENCODE(2,IDATE)DATE(L+1,K)
C     ISOLATE THE MONTH
      MNT=FLD(12,12,IDATE)
      FLD(0,24,MNT) = '    '
C     CONVERT MONTH TO INTEGER
      DECODE(2,MNT)MONTH
C     DETERMINE HOW MANY MONTHS IN THIS SPECIFIC QUARTER
      QRTCNT = TABTBL(MONTH)
2     FORMAT(I6)
C     CONVERT NEXT TWO DATES TO FIELD DATA
      ENCODE(2,I2DATE)DATE(L+2,K)
      ENCODE(2,I3DATE)DATE(L+3,K)
C     ISOLATE THREE (3) CONSECUTIVE YEARS
      YR1 = FLD(0,12,IDATE)
      YR2 = FLD(0,12,I2DATE)
      YR3 = FLD(0,12,I3DATE)
C     TEST TO SEE IF ALL THREE ARE THE SAME
      IF(YR1.EQ.YR2.AND.YR2.EQ.YR3) GO TO 3
C     TEST TO SEE IF THE FIRST TWO ARE THE SAME
      IF(YR1.EQ.YR2) GO TO4
7     CONTINUE
      M=M+1
      L=L+1
C     CALCULATE THE QUARTERLY AVERAGE
      QRTAVG(M,K) = VARRAY(L,K)/LQDIV(L,K)
C     CONVERT YEAR TO INTEGER AND STORE
      FLD(0,24,YR1) = '    '
      DECODE(2,YR1) YEAR(M,K)
C     FORM NEW DATE OF YEAR AND MONTHS INVOLVED IN THE QUARTER
      FLD(0,12,MMON) = FLD(12,12, IDATE)
      FLD(12,24,MMON) = '    '
      DECODE(2,MMON)QRTDAT(M,K)
      GO TO 5
4     CONTINUE
C     THIS BRANCH TAKES CARE OF INCIDENT OF THREE MONTHS NEEDED IN WUARTERLY AVĒ
C     HOWEVER, ONLY TWO ARE AVAILABLE
      IF(QRTCNT.LT.3) GO TO 7
      QRTCNT = 2
3     CONTINUE
C     SUM FOR QUARTERLY AVERAGES DIVIDENDS
      SUM = 0
C     SUM FOR DIVISOR OF QUARTERLY AVERAGE
      LDSUM = 0
C     ISOLATE MONTH FROM NEXT DATE
      MO = FLD(12,12,I2DATE)
      FLD(0,24,MO)  = '    '
      DECODE(2,MO) MO1
C     TEST TO SEE IF CONSECUTIVE MONTHS
      IF(MO1.EQ.MONTH+1) GO TO 6
C     IF NOT CONSECUTIVE, CALCULATE QUARTERLY AVERAGE
      GO TO 7
```

```
6       CONTINUE
C       SUM PROPER NUMBER OF MONTHS
        DO 8 I=1,QRTCNT
        L=L+1
C       TEST FOR END OF SITE VALUES
        IF(L.GT.NUMROW(K)) GO TO 13
C       DIVISOR SUM
        LDSUM =LDSUM + LQDIV(L,K)
C       DATA SUM
        SUM = SUM +VARRAY(L,K)
C       DATE FORMED BY THE NUMBER OF MONTHS SUMMED
        GO TO(10,11,12),I
10      CONTINUE
C       ONE MONTH SUMMED
        FLD(0,12,MMON) =FLD(12,12,IDATE)
        FLD(12,24,MMON)='    '
        GO TO 8
11      CONTINUE
C       TWO MONTHS SUMMED
        FLD(12,12,MMON)=FLD(12,12,I2DATE)
        GO TO 8
12      CONTINUE
C       THREE MONTHS SUMMED
        FLD(24,12,MMON) = FLD(12,12,I3DATE)
8       CONTINUE
        GO TO 14
13      CONTINUE
C       LAST VALUE OF SITE OBTAINED--CALCULATE DIVISOR SUM USING PROPER NUMBER OF
C       MONTHS PRESENT
        LDSUM = 0
        DO 15 J=1,I
        LDSUM = LDSUM +LQDIV(L,K)
        L=L+1
15      CONTINUE
14      CONTINUE
C       CALCULATE QUARTERLY AVERAGE
        M=M+1
        QRTAVG(M,K) = SUM/LDSUM
C       FORM DATE FORMAT (MONTHS INVOLVED IN THE AVERAGE)
        DECODE(2,MMON)QRTDAT(M,K)
        FLD(0,24,YR1) = '    '
C       FORM YEAR ARRAY
        DECODE(2,YR1) YEAR(M,K)
        GO TO 5
100     CONTINUE
C       SITE COUNT OF VALUES
        NM(K) = M
1       CONTINUE
        RETURN
        END




        SUBROUTINE PRQAV(VARRAY,VDATE,NUM,VTARR,KOUNT,YR)                 00000100
C*****************************************************************************
C
C*****THIS ROUTINE PRINTS QUARTERLY AVERAGES OF 5 SITES WITH ITS  DATE FORMAT
C       SIMILAR TO THE OTHER WRITE ROUTINE
C
C        LIST ELEMENTS:
C          VARRAY: QUARTERLY AVERAGES
C          VDATE: QUARTERLY AVERAGE DATES (MONTHS)
C          NUM: ROW COUNT  (NUMBER OF VALUES FOR EACH SITE)
C          VTARR: VARIABLE FOR THE QUARTERLY AVERAGE WRITE
C          KOUNT: SAME AS IN OTHER WRITE ROUTINE
C          YR: YEAR ARRAY TO BE PRINTED BEFORE THE MONTH
C
C*****************************************************************************
        DIMENSION VARRAY(20,5) ,VTARR(20,5)
        INTEGER VDATE(20,5) ,YR(20,5)
        WRITE(6,1)
        IF(KOUNT.NE.1) GO TO 10
        WRITE(6,2)((YR(I,J),VDATE(I,J),VARRAY(I,J),J=1,5),I=1,NUM)
        RETURN
10      WRITE(6,3)((YR(I,J),VDATE(I,J),VARRAY(I,J),VTARR(I,J),J=1,5),I=1,N
       *UM)
1       FORMAT(1H0,'YR/MOS',2X,'WHITACKER LAKE',3X,'YR/MOS',4X,'MIRROR LAK
       *E',4X,'YR/MOS',2X,'WHITESBURG BD',3X,'YR/MOS', ' WHEELER-DECATUR',
       *3X,'YR/MOS',2X,'BROWNS FERRY',//)
2       FORMAT(5(I3,I6,3X,F6.2,8X))
3       FORMAT(5(I3,I6,   F7.3,'(',F6.2,')',1X))
        RETURN
        END
```

APPENDIX B

WHITAKER LAKE

DATE	TEMP F	TEMP C	MAX DO	% DO	PPM DO	PH
710706	80.780	27.100	7.860	87.000	6.800	7.500
711406	84.200	29.000	7.640	73.000	5.600	7.500
712106	84.380	29.100	7.640	63.000	4.800	7.500
712806	84.740	29.300	7.610	71.000	5.400	8.000
710407	86.900	30.500	7.470	78.000	5.800	8.500
711207	87.800	31.000	7.420	54.000	4.000	8.000
711907	86.000	30.000	7.530	56.000	4.200	8.000
712607	81.500	27.500	7.810	59.000	4.600	8.000
710208	78.800	26.000	7.990	70.000	5.600	8.000
710908	86.900	30.500	7.470	54.000	4.000	8.200
711608	84.200	29.000	7.640	71.000	5.400	7.500
712308	86.900	30.500	7.470	67.000	5.000	8.500
713008	81.500	27.500	7.810	61.000	4.800	8.000
710609	86.000	30.000	7.530	66.000	5.000	8.000
711309	80.600	27.000	7.860	76.000	6.000	8.000
712009	77.000	25.000	8.110	68.000	5.480	7.500
712809	83.300	28.500	7.690	91.000	7.000	8.000
710110	999.000	999.000	999.000	999.000	999.000	999.000
710510	78.800	26.000	7.990	98.000	7.800	8.000
711210	75.992	24.440	8.190	98.000	8.000	8.000
712010	71.006	21.670	8.590	107.000	9.200	8.000
712710	75.200	24.000	8.250	116.000	9.600	8.200
710111	71.240	21.800	8.580	84.000	7.200	7.800
710811	53.006	11.670	10.530	85.000	9.000	7.500
711511	59.900	15.500	9.660	75.000	7.200	7.200
710612	52.340	11.300	10.620	75.000	8.000	7.000
711012	999.000	997.000	999.000	999.000	999.000	999.000
711412	59.000	15.000	9.760	86.000	8.300	8.000
712412	48.992	9.440	11.080	57.000	6.360	7.000
720101	51.998	11.110	10.650	82.000	8.720	7.000
720301	51.008	10.560	10.800	93.000	10.000	7.800
721101	57.002	13.890	10.020	80.000	8.000	8.000
721801	999.000	999.000	999.000	999.000	999.000	999.000
722301	54.500	12.500	10.310	105.000	10.800	7.200
722601	53.996	12.220	10.380	100.000	10.400	7.500
720202	44.996	7.220	11.700	82.000	9.600	7.800
720902	42.998	6.110	12.030	55.000	6.600	7.800
721602	46.004	7.780	11.550	66.000	7.600	7.000
722402	48.992	9.440	11.080	58.000	6.400	8.500
720103	53.996	12.220	10.380	58.000	6.000	7.600
720803	51.008	10.560	10.800	72.000	7.800	8.000
721703	57.002	13.890	10.020	86.000	8.600	7.800
722203	55.004	12.700	10.270	80.000	8.200	8.000
723003	57.200	14.000	9.900	84.000	8.400	7.000
720604	64.400	18.000	9.180	86.000	7.900	8.000
721304	66.000	20.000	8.840	100.000	8.800	8.000
722004	72.500	22.500	8.460	71.000	6.000	7.500
722604	66.200	19.000	9.010	73.000	6.600	7.500
720305	69.800	21.000	8.680	94.030	8.200	8.000
721005	66.200	19.000	9.010	87.000	7.800	7.700
721705	73.400	23.000	8.380	98.000	8.240	7.750
722505	76.100	24.500	8.180	111.000	9.040	8.000
722905	77.000	25.000	8.110	92.000	7.440	8.250
720806	80.060	26.700	7.900	108.000	8.500	8.410
721506	82.400	28.000	7.750	116.000	9.000	7.700
722206	73.940	23.300	8.360	96.000	8.000	8.550
722806	80.060	26.700	7.900	95.000	7.500	8.650
720407	80.600	27.000	7.860	70.000	5.500	7.500
721307	84.020	28.900	7.650	98.000	7.500	8.600
722007	84.920	29.400	7.590	86.000	6.500	7.600
722607	84.200	29.000	7.640	85.000	6.500	8.600
720308	82.040	27.800	7.780	96.000	7.500	8.650
721008	82.040	27.800	7.780	103.000	8.000	8.600
721708	83.480	28.600	7.690	104.000	8.000	8.700
722408	84.020	28.900	7.650	98.000	7.500	8.750
723108	82.400	28.000	7.750	101.000	0.000	8.350
720709	82.040	27.800	7.780	84.000	6.500	8.350
721509	80.060	26.700	7.900	101.000	8.000	8.350
721809	78.800	26.000	7.990	100.000	8.000	8.350
722509	81.500	27.500	7.810	115.000	9.000	8.600
720210	72.500	22.500	8.460	95.000	8.000	7.750
720910	68.000	20.000	[illegible]	102.000	9.000	8.520
721610	69.080	20.600	8.760	103.000	9.000	8.400
722310	61.700	16.500	9.460	999.000	999.000	8.250
723010	59.900	15.500	9.660	997.000	999.000	8.700
720611	61.880	16.600	9.460	999.000	999.000	8.300
721311	59.360	15.200	9.720	999.000	999.000	8.350
722011	50.000	10.000	10.920	999.000	999.000	8.650
722711	46.400	8.000	11.470	999.000	999.000	8.250
720412	47.840	8.800	11.270	999.000	999.000	8.290
721112	51.800	11.000	10.670	999.000	999.000	8.400
721712	43.160	6.200	12.030	999.000	999.000	8.750
722612	46.860	7.700	11.580	999.000	999.000	8.800
730101	49.820	9.900	10.980	999.000	999.000	8.200
730901	41.180	5.100	12.340	999.000	999.000	5.400
731501	41.000	5.000	12.370	999.000	999.000	8.800
732201	51.800	11.000	10.670	999.000	999.000	8.300
730202	46.400	8.000	11.470	999.000	999.000	8.450
730502	50.000	10.000	10.920	999.000	999.000	8.330
731202	41.000	5.000	12.370	999.000	999.000	8.390
731902	41.900	5.500	12.220	999.000	999.000	8.340
732602	48.002	8.890	11.250	999.000	999.000	8.200
730503	47.300	8.500	11.330	999.000	999.000	8.200
731203	66.200	19.000	9.010	999.000	999.000	7.550
732303	55.040	12.800	10.270	999.000	999.000	8.100
733003	57.920	14.400	9.910	91.000	9.000	8.100
730404	60.800	16.000	9.560	92.000	8.800	8.550
731104	53.780	12.100	10.400	86.000	8.900	8.100
731604	61.160	16.200	9.520	90.000	8.600	8.450
732304	68.500	20.280	8.790	89.000	7.800	8.150
733004	66.000	18.890	9.030	97.000	8.800	7.600
730705	65.500	18.610	9.080	84.000	7.600	8.600
731405	71.000	21.670	8.580	999.000	999.000	999.000
732205	70.800	21.560	8.590	86.000	7.400	8.400
732905	71.500	21.940	8.550	76.000	6.480	8.460
730406	81.000	27.220	7.840	91.000	7.120	8.550
731106	80.000	26.670	7.900	94.000	7.400	8.700

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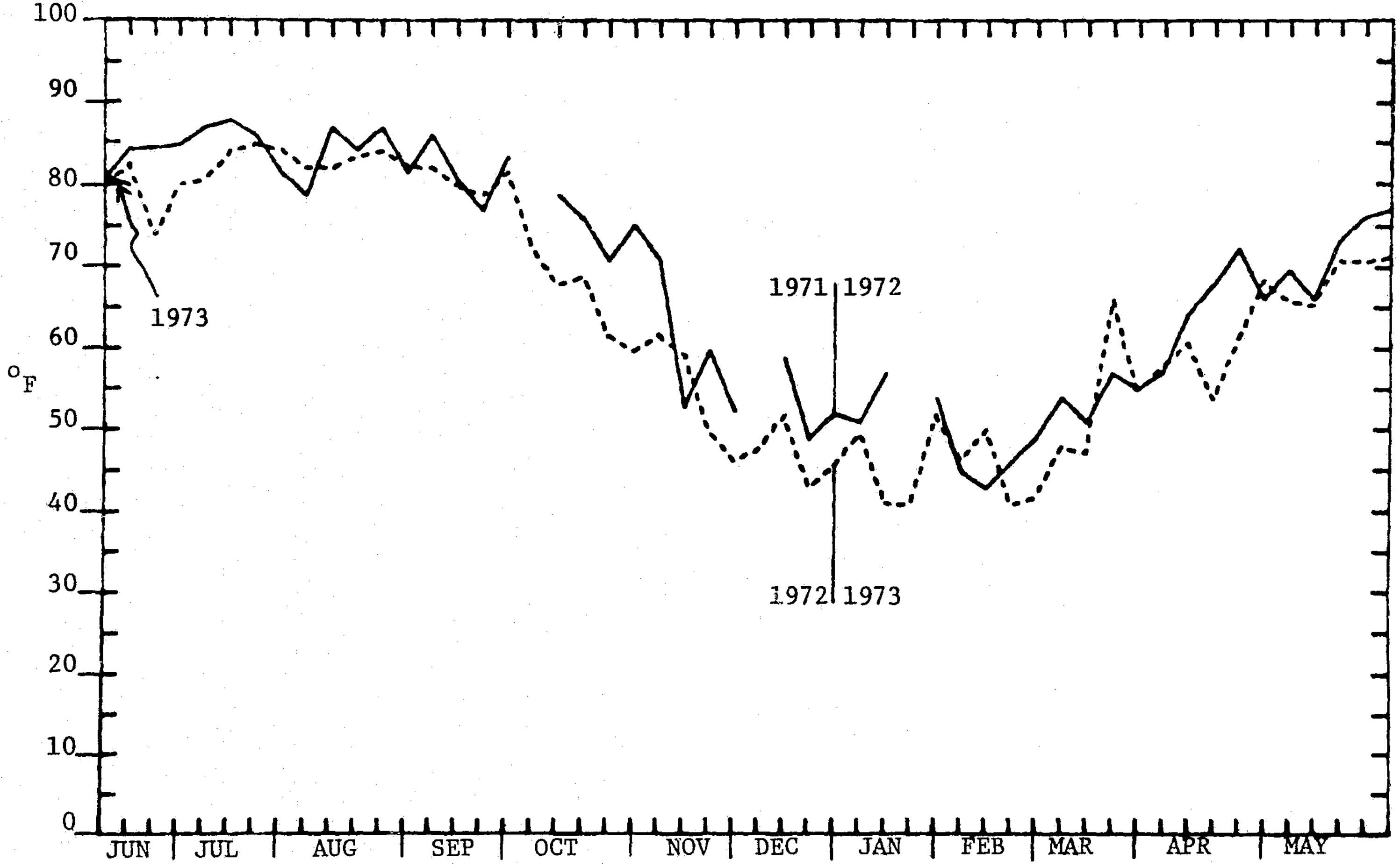

FIGURE 12. WEEKLY TEMPERATURE (°F) OF WHITACKER LAKE FROM JUNE 7, 1971 TO JUNE 11, 1973.

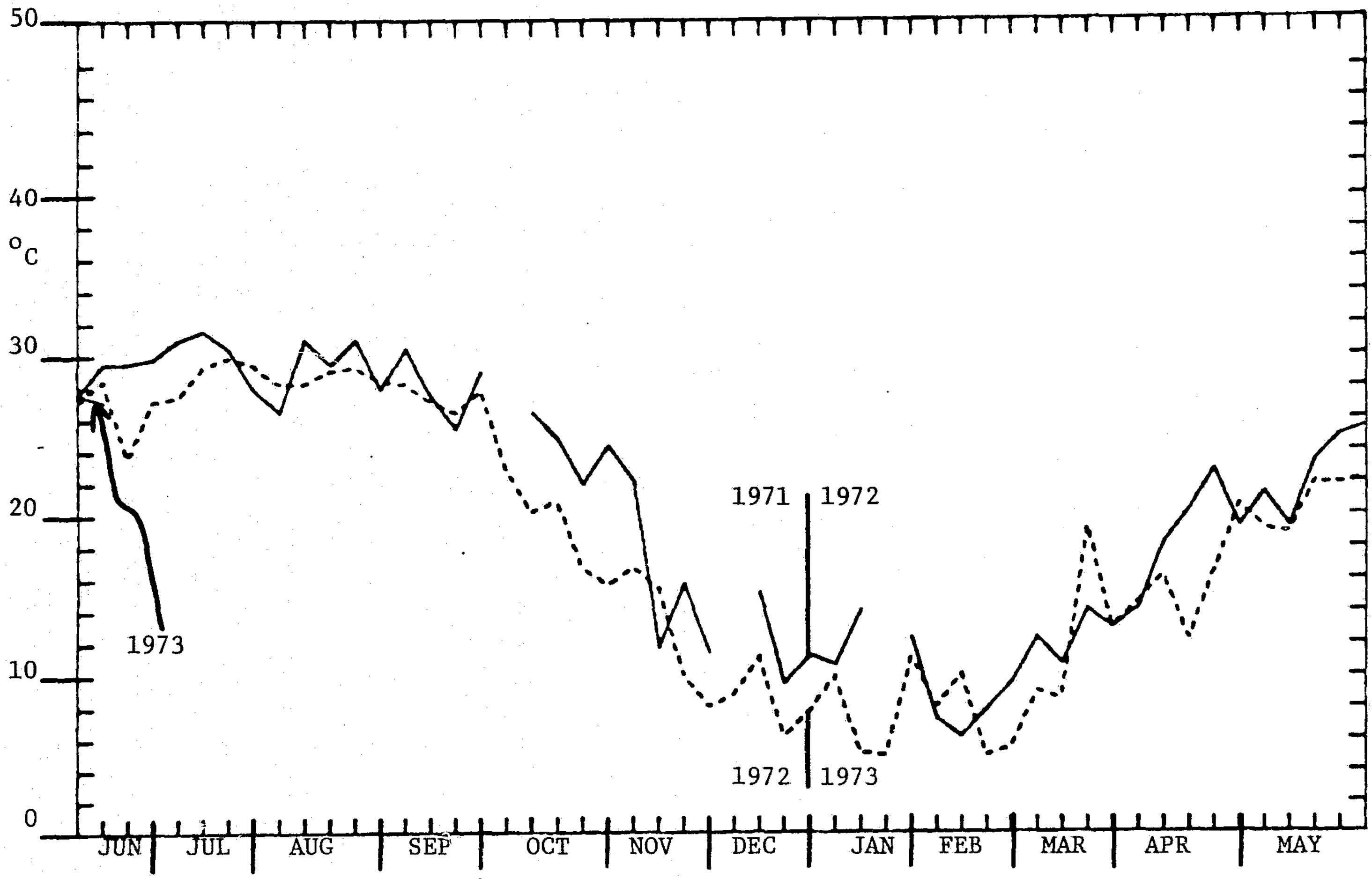

FIGURE 13. WEEKLY TEMPERATURE (°C) OF WHITACKER FROM JUNE 7, 1971 TO JUNE 11, 1973.

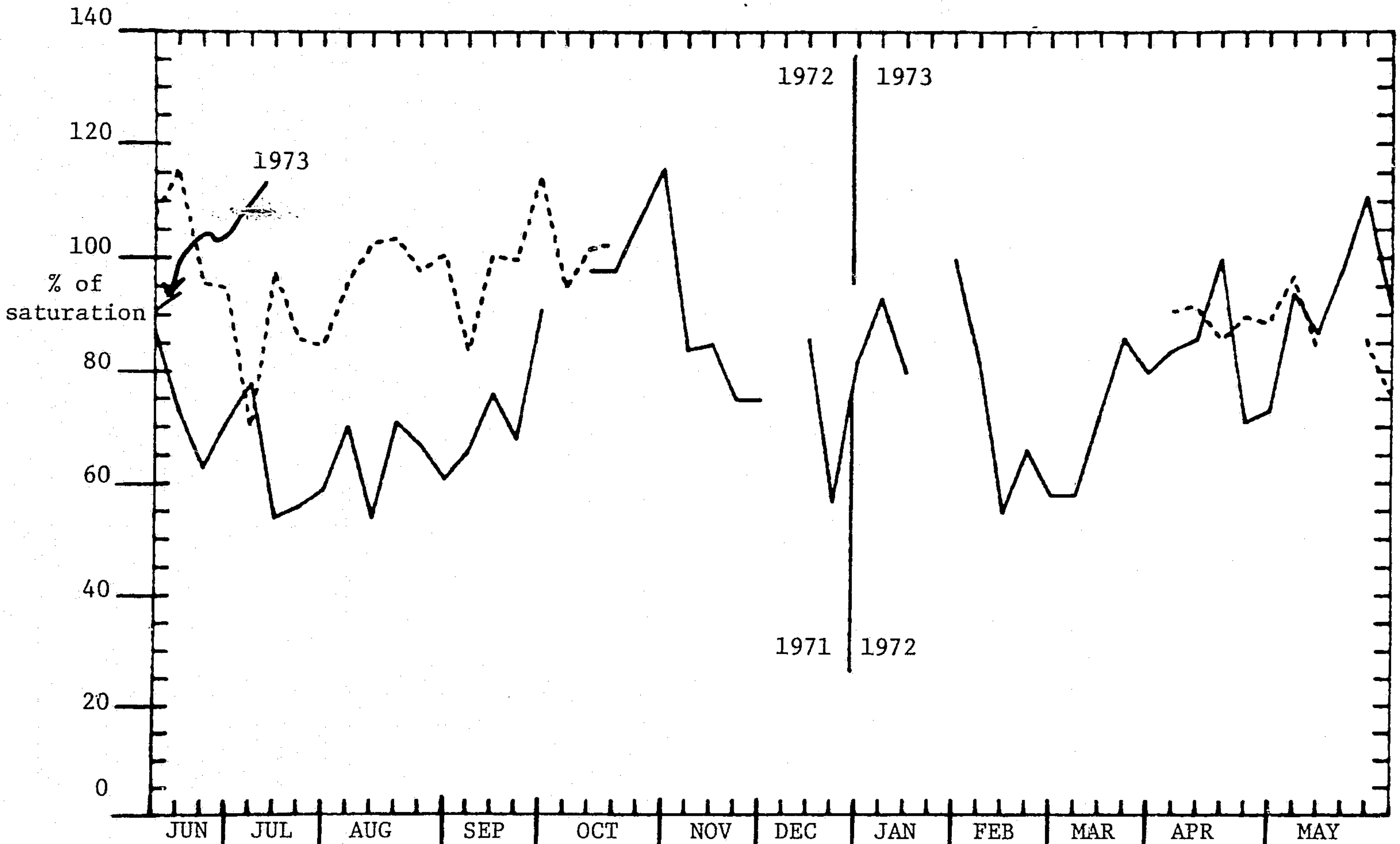

FIGURE 14. WEEKLY OXYGEN PERCENT OF SATURATION FOR WATER TEMPERATURE OF WHITAKER FROM JUNE 7, 1971 TO JUNE 11, 1973.

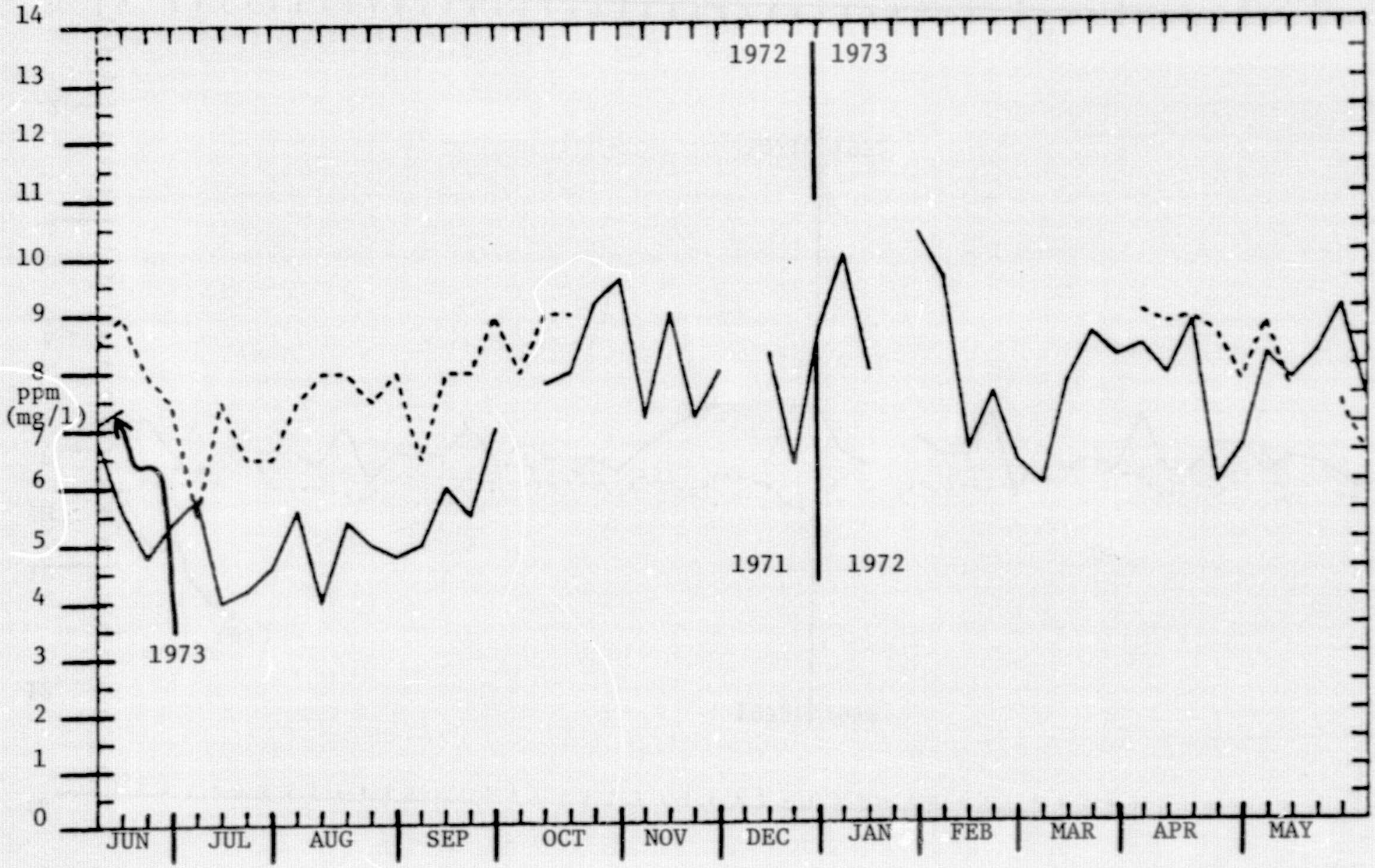

FIGURE 15. WEEKLY ACTUAL DISSOLVED OXYGEN IN PARTS PER MILLION OF WHITACKER FROM JUNE 7, 1971 TO JUNE 11, 1973.

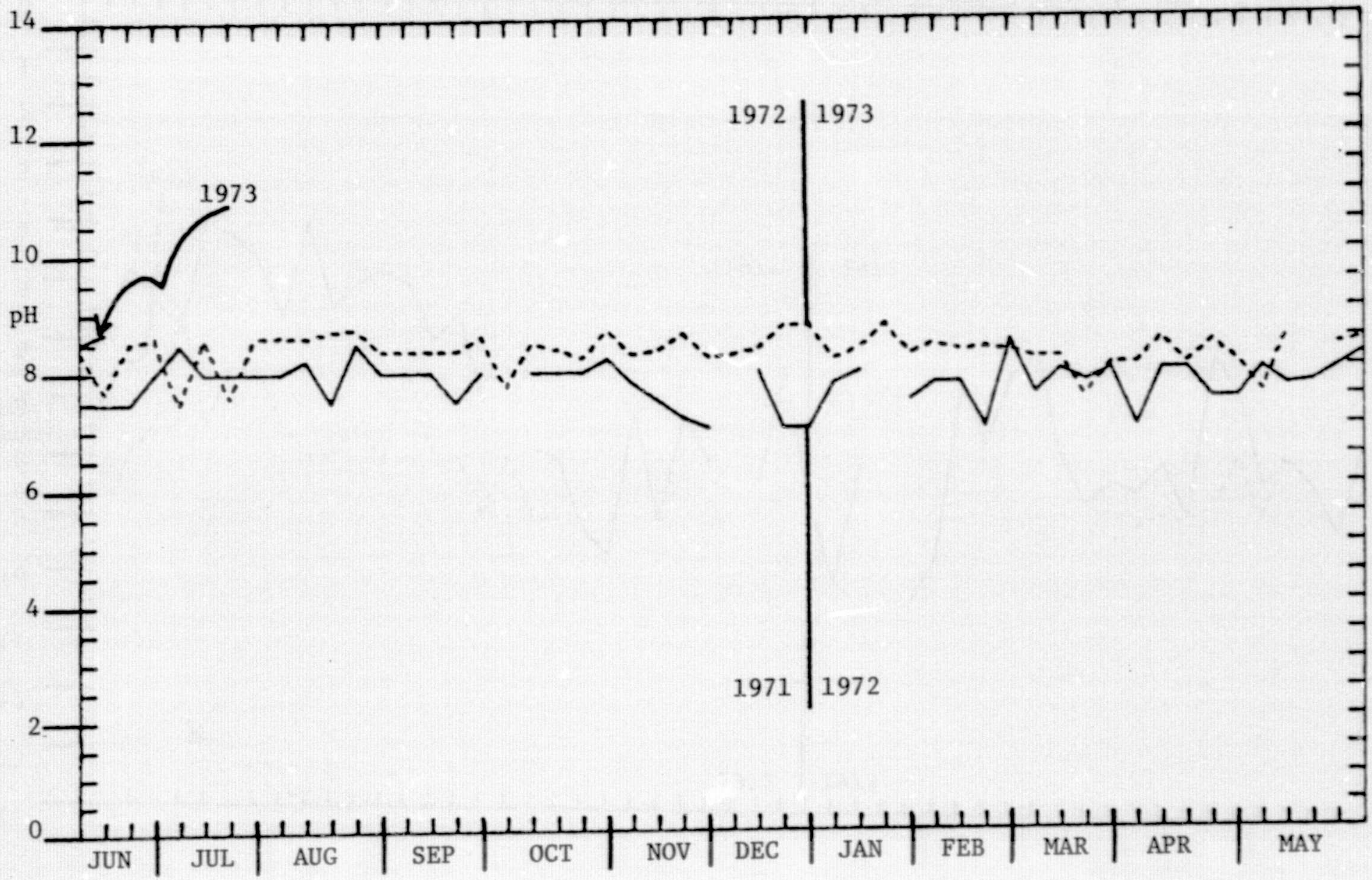

FIGURE 16. WEEKLY pH OF WHITAKER FROM JUNE 7, 1971 TO JUNE 11, 1973.

MIRROR LAKE

DATE	TEMP F	TEMP C	MAX DO	% DO	PPM DO	PH
710706	80.600	27.000	7.860	97.000	7.600	8.300
711406	84.200	29.000	7.640	97.000	7.400	8.200
712106	84.200	29.000	7.640	92.000	7.000	8.200
712806	84.200	29.000	7.640	72.000	5.480	8.500
710407	86.900	30.500	7.470	80.000	6.000	8.500
711207	86.900	30.500	7.470	54.000	4.000	8.500
711907	86.000	30.000	7.530	53.000	4.000	8.000
712607	80.600	27.000	7.860	70.000	5.520	7.200
710208	78.800	26.000	7.990	67.000	5.320	7.800
710908	85.100	29.500	7.580	53.000	4.000	8.300
711608	85.100	29.500	7.580	79.000	6.000	7.800
712308	86.000	30.000	7.530	53.000	4.000	8.500
713008	81.500	27.500	7.810	54.000	4.240	7.500
710609	86.900	30.500	7.470	53.000	3.960	8.000
711309	81.500	27.500	7.810	80.000	6.250	7.500
712009	77.900	25.500	8.050	50.000	4.000	7.000
712809	84.200	29.000	7.640	52.000	4.000	7.500
710110	999.000	999.000	999.000	999.000	999.000	999.000
710510	78.800	26.000	7.990	56.000	4.500	8.000
711210	75.920	24.400	8.190	83.000	6.800	7.000
712010	71.006	21.670	8.590	88.000	7.600	7.800
712710	73.400	23.000	8.380	85.000	7.100	7.200
710111	71.600	22.000	8.530	98.000	8.400	7.200
710811	60.008	15.560	9.660	99.000	9.600	7.500
711511	60.800	16.000	9.560	94.000	9.000	7.300
710612	48.992	9.440	11.080	94.000	10.400	7.500
711012	999.000	999.000	999.000	999.000	999.000	999.000
711412	51.008	10.560	10.800	100.000	10.800	6.500
712412	51.800	11.000	10.670	80.000	8.500	7.500
720101	51.998	11.110	10.650	92.000	9.840	7.000
720301	53.006	11.670	10.530	87.000	9.200	7.000
721101	51.998	11.110	10.650	88.000	9.400	7.900
721801	999.000	999.000	999.000	999.000	999.000	999.000
722301	52.700	11.500	10.550	95.000	10.000	7.500
722601	55.994	13.330	10.130	95.000	9.600	7.200
720202	44.996	7.220	11.700	84.000	9.800	7.500
720902	42.008	5.560	12.220	69.000	8.400	7.500
721602	44.996	7.220	11.700	55.000	6.400	6.500
722402	48.992	9.440	11.080	69.000	7.600	8.000
720103	51.998	11.110	10.650	79.000	8.400	7.500
720803	51.008	10.560	10.800	61.000	6.600	8.000
721703	55.004	12.780	10.270	100.000	10.280	8.000
722203	55.004	12.780	10.270	60.000	6.200	8.060
723003	53.600	12.000	10.430	82.000	8.600	8.000
720604	62.600	17.000	9.370	94.000	8.800	7.000
721304	64.400	18.000	9.180	74.000	6.800	7.500
722004	71.600	22.000	8.530	73.000	6.200	8.000
722604	68.000	20.000	8.840	68.000	6.000	8.000
720305	69.800	21.000	8.680	97.000	8.400	8.000
721005	68.000	20.000	8.840	93.000	8.200	8.000
721705	71.600	22.000	8.530	108.000	9.200	7.750
722505	75.200	24.000	8.250	108.000	8.880	8.000
722905	75.200	24.000	8.250	102.000	8.400	6.000
720806	78.980	26.100	7.990	94.000	7.500	8.350
721506	82.400	28.000	7.750	110.000	8.500	8.700
722206	75.200	24.000	8.250	91.000	7.500	8.400
722806	78.080	25.600	8.050	93.000	7.500	8.600
720407	80.960	27.200	7.840	96.000	7.500	7.500
721307	82.940	28.300	7.720	110.000	8.500	7.000
722007	83.840	28.800	7.670	85.000	6.500	8.400
722607	84.020	28.900	7.650	98.000	7.500	8.670
720308	82.940	28.300	7.720	97.000	7.500	8.800
721008	82.940	28.300	7.720	104.000	8.000	7.200
721708	82.040	27.800	7.780	116.000	9.000	8.350
722408	82.940	28.300	7.720	110.000	8.500	7.350
723108	81.320	27.400	7.820	90.000	7.000	6.750
720709	82.040	27.800	7.780	77.000	6.000	8.480
721509	80.960	27.200	7.840	108.000	8.500	8.850
721809	78.980	26.100	7.990	100.000	8.000	8.450
722509	78.800	26.000	7.990	98.000	7.000	8.050
720210	73.940	23.300	8.360	96.000	8.000	7.300
720910	70.340	21.300	8.650	75.000	6.500	8.700
721610	69.080	20.600	8.760	74.000	6.500	8.450
722310	64.400	18.000	9.180	999.000	999.000	7.950
723010	61.520	16.400	9.480	999.000	999.000	8.350
720611	59.900	15.500	9.660	999.000	999.000	8.450
721311	59.900	15.500	9.660	999.000	999.000	8.510
722011	53.600	12.000	10.430	999.000	999.000	8.850
722711	50.000	10.000	10.920	999.000	999.000	8.210
720412	49.820	9.900	10.980	999.000	999.000	8.300
721112	50.000	10.000	10.920	999.000	999.000	8.350
721712	47.840	8.800	11.270	999.000	999.000	8.600
722612	45.860	7.700	11.580	999.000	999.000	8.580
730101	51.800	11.000	10.670	999.000	999.000	8.320
730901	44.600	7.000	11.760	999.000	999.000	8.370
731501	42.800	6.000	12.060	999.000	999.000	8.310
732201	46.400	8.000	11.470	999.000	999.000	8.220
730202	46.400	8.000	11.470	999.000	999.000	8.590
730502	46.400	8.000	11.470	999.000	999.000	8.500
731202	42.800	6.000	12.060	999.000	999.000	8.400
731902	41.720	5.400	12.280	999.000	999.000	8.200
732602	45.860	7.700	11.580	999.000	999.000	8.220
730503	51.008	10.560	10.800	999.000	999.000	8.200
731203	64.400	18.000	9.180	999.000	999.000	8.300
732303	56.660	13.700	10.040	999.000	999.000	7.600
733003	57.200	14.000	9.960	79.000	7.880	8.200
730404	58.640	14.800	9.830	88.000	8.680	8.100
731104	55.220	12.900	10.240	94.000	9.600	8.330
731604	60.440	15.800	9.620	102.000	9.800	8.200
732304	67.000	19.440	8.940	101.000	9.000	8.100
733004	999.000	999.000	999.000	999.000	8.200	7.900
730705	63.500	17.500	9.280	91.000	8.400	8.350
731405	71.000	21.670	8.580	999.000	999.000	999.000
732205	72.000	22.220	8.500	92.000	7.800	8.450
732905	74.000	23.330	8.340	85.000	7.080	8.250
730906	81.000	27.220	7.840	99.000	7.800	8.400
731106	79.000	26.110	7.970	100.000	8.000	8.450

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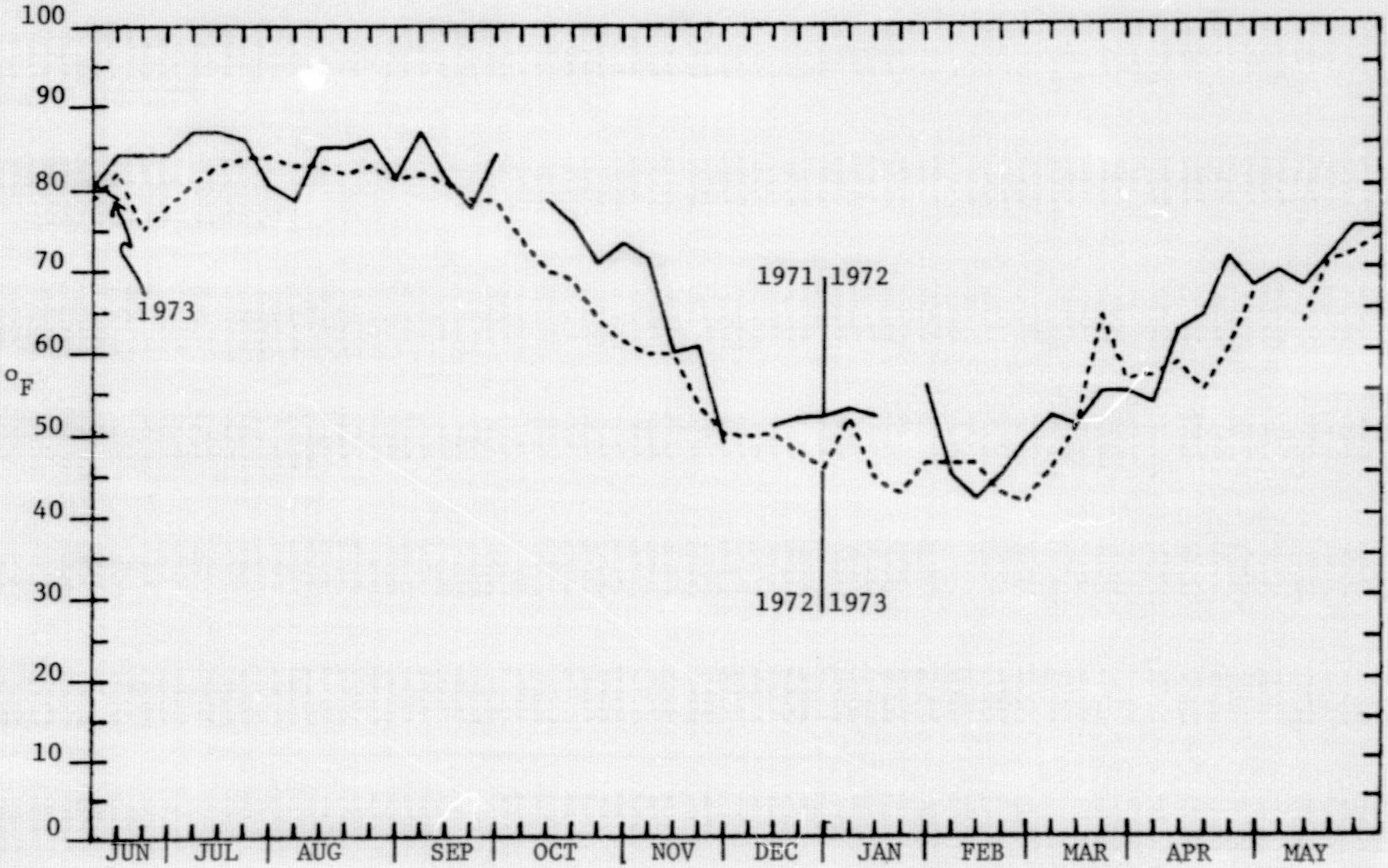

FIGURE 17. WEEKLY TEMPERATURE (°F) OF MIRROR LAKE FROM JUNE 7, 1971 TO JUNE 11, 1973.

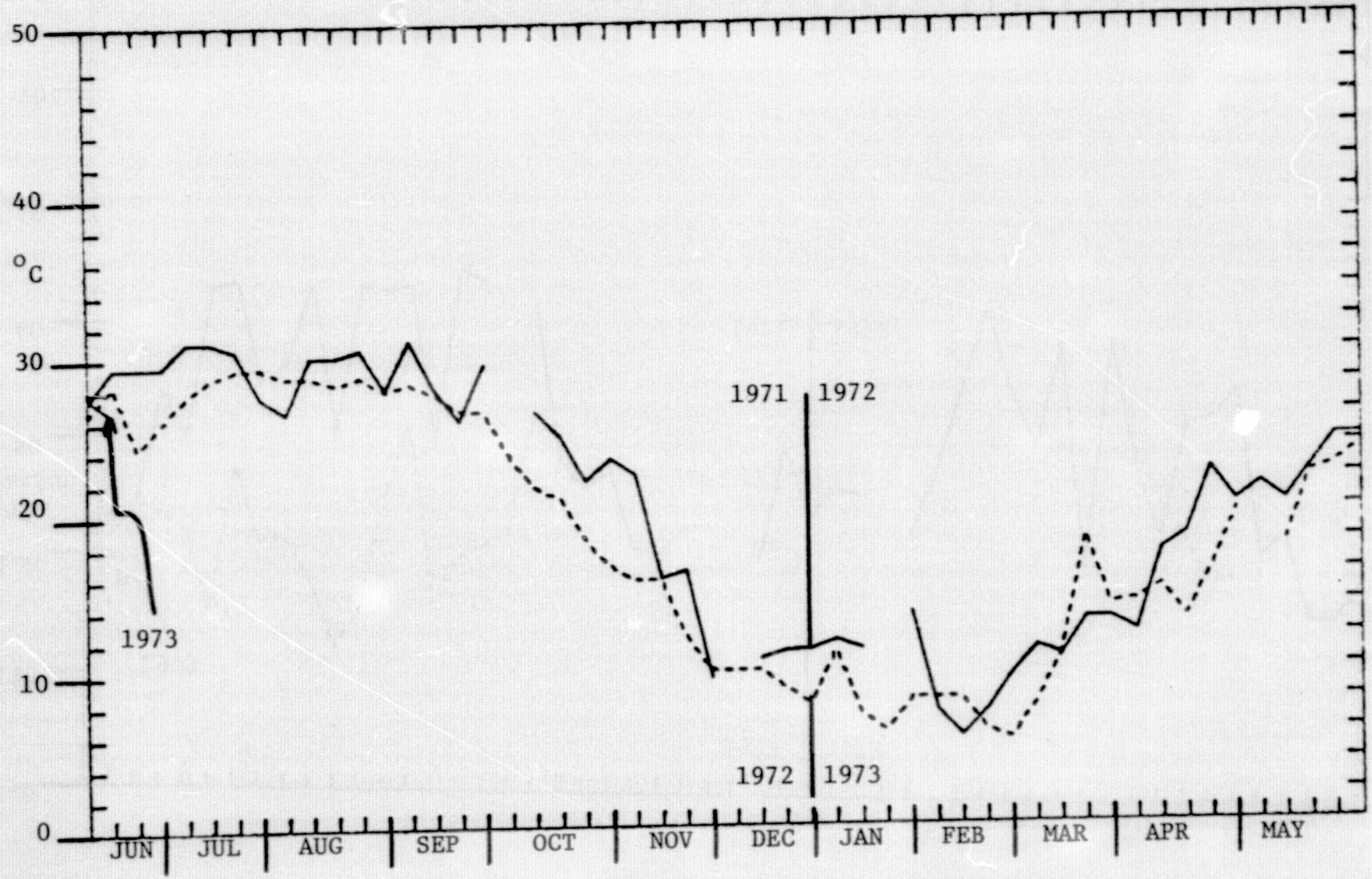

FIGURE 18. WEEKLY TEMPERATURE (°C) OF MIRROR FROM JUNE 7, 1971 TO JUNE 11, 1973.

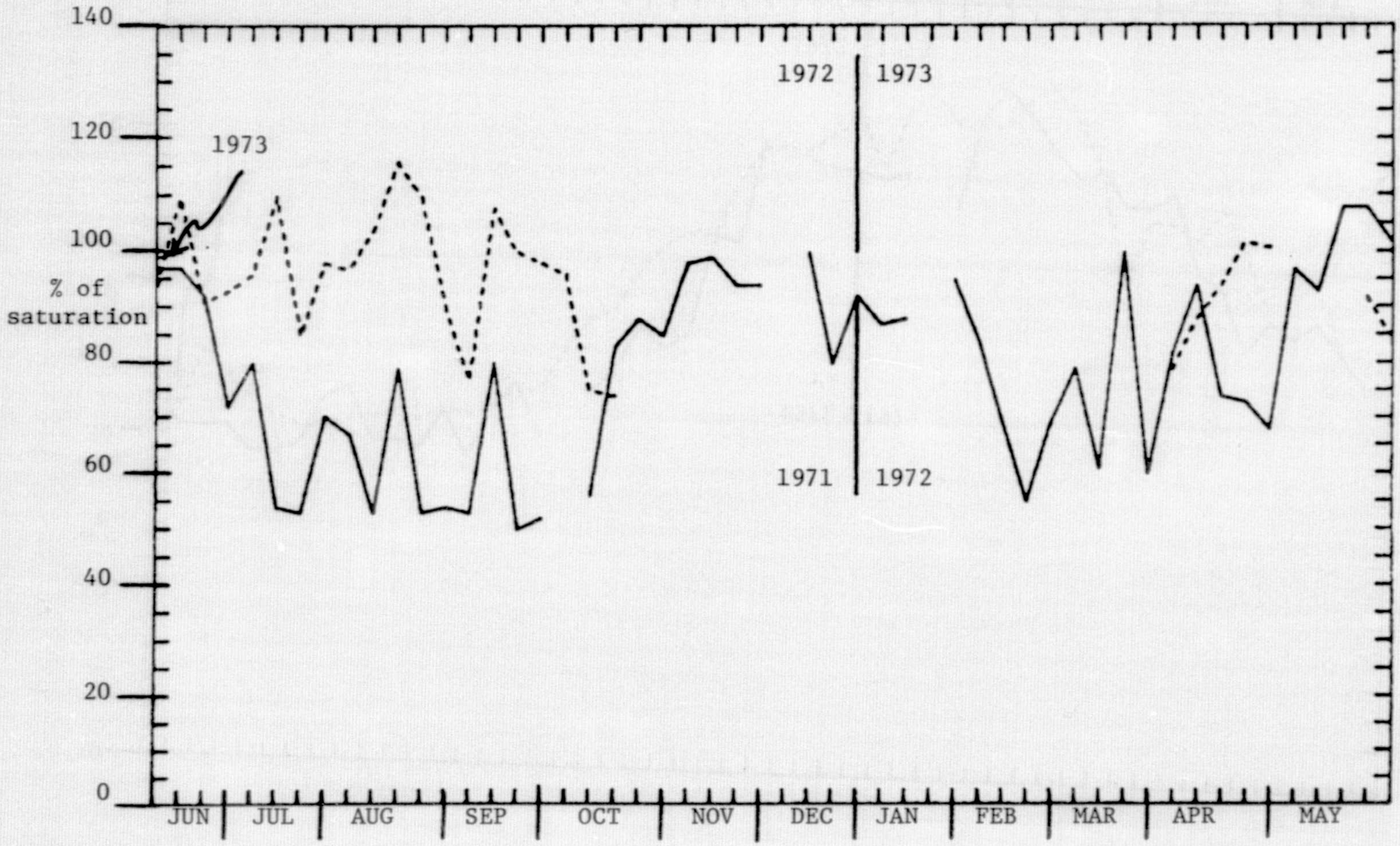

FIGURE 19. WEEKLY OXYGEN PERCENT OF SATURATION FOR WATER TEMPERATURE OF MIRROR FROM JUNE 7, 1971 TO JUNE 11, 1973.

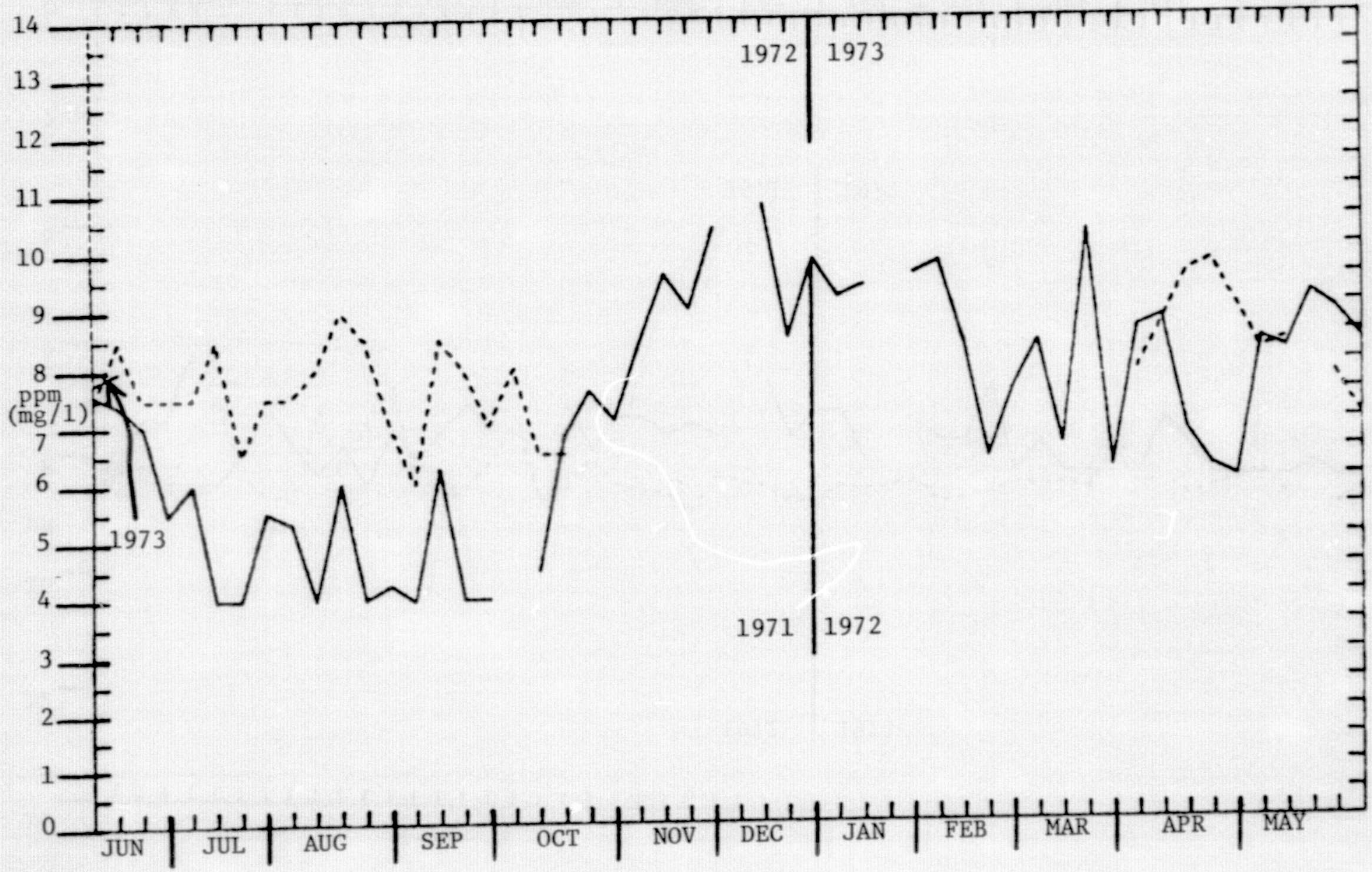

FIGURE 20. WEEKLY ACTUAL DISSOLVED OXYGEN IN PARTS PER MILLION OF MIRROR FROM JUNE 7, 1971 TO JUNE 15, 1973.

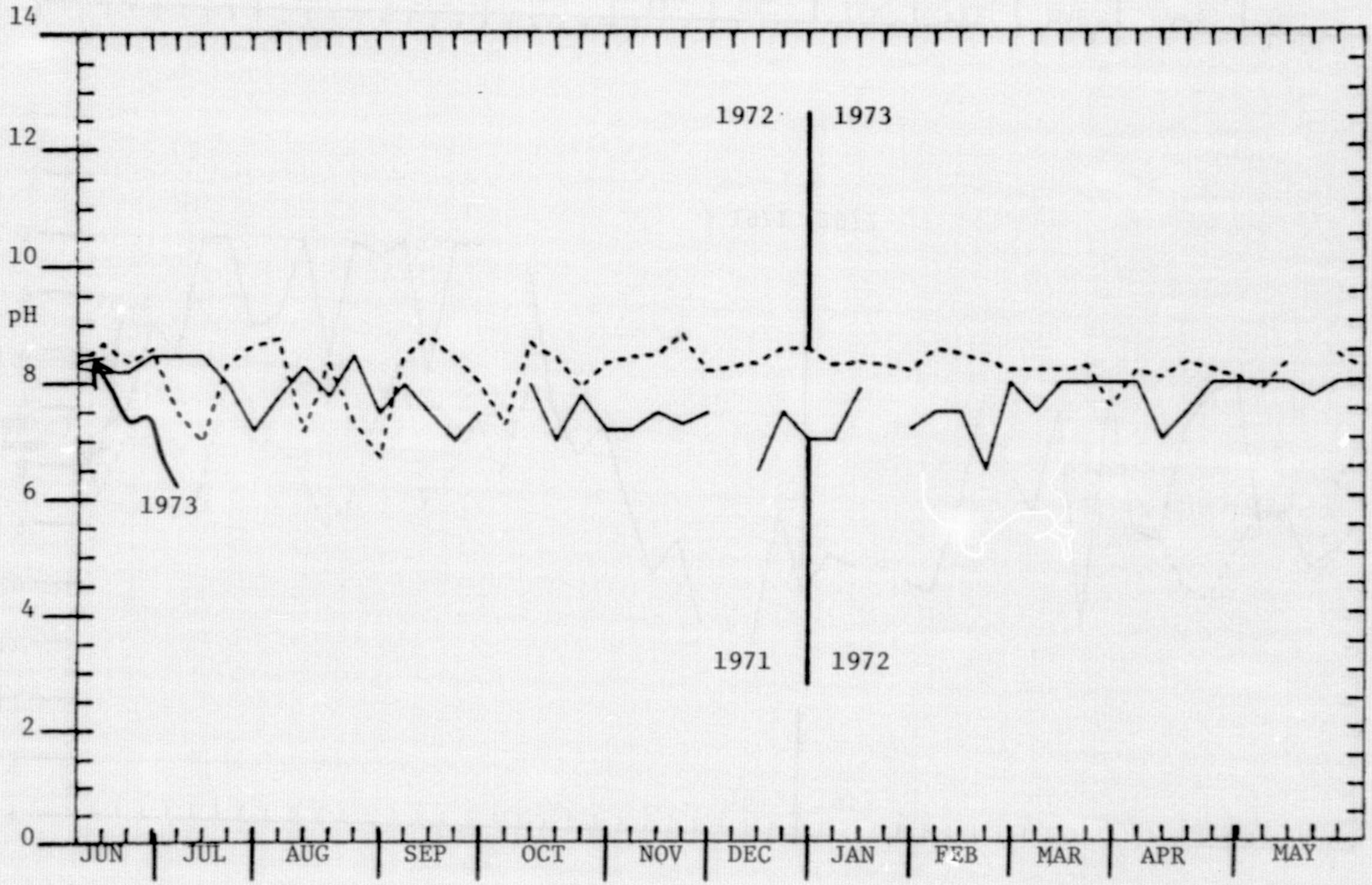

FIGURE 21. WEEKLY pH OF MIRROR FROM JUNE 7, 1971 TO JUNE 11, 1973.

WHITESBURG BOAT DOCK

DATE	TEMP F	TEMP C	MAX DO	% DO	PPM DO	PH
710606	999.000	999.000	999.000	999.000	999.000	999.000
711106	77.900	25.500	8.050	52.000	4.200	7.200
711806	80.600	27.000	7.860	69.000	5.400	7.000
712506	82.400	28.000	7.750	66.000	5.120	7.600
710207	82.400	28.000	7.750	59.000	4.600	7.000
710907	83.300	28.500	7.690	60.000	4.600	7.200
711607	82.400	28.000	7.750	44.000	3.440	7.200
712307	81.500	27.500	7.810	47.000	3.680	7.200
713007	79.700	26.500	7.920	45.000	3.600	7.000
710608	80.600	27.000	7.860	51.000	4.000	7.000
711308	82.400	28.000	7.750	47.000	3.640	7.500
712008	83.300	28.500	7.690	52.000	4.000	7.200
712708	84.200	29.000	7.640	58.000	4.440	7.000
710209	80.600	27.000	7.860	61.000	4.800	7.200
711009	79.700	26.500	7.920	57.000	4.500	7.200
711709	77.900	25.500	8.050	47.000	3.800	7.000
712409	78.800	26.000	7.990	50.000	4.000	7.500
710110	77.000	25.000	8.110	62.000	5.000	7.620
710810	75.020	20.000	8.260	65.000	5.400	7.200
711510	71.960	22.200	8.500	71.000	6.000	7.000
712210	71.600	22.000	8.530	61.000	5.200	8.000
712910	69.800	21.000	8.680	58.000	5.000	8.000
710311	999.000	999.000	999.000	999.000	999.000	999.000
710811	61.340	16.300	9.520	63.000	6.000	7.200
711211	60.980	16.100	9.560	59.000	5.600	7.100
710612	53.960	12.200	10.380	72.000	7.500	7.500
711012	51.980	11.100	10.650	70.000	7.500	999.000
711412	51.980	11.100	10.650	94.000	10.000	7.000
712412	52.340	11.300	10.620	64.000	8.600	7.000
720101	51.980	11.100	10.650	82.000	8.760	7.200
720301	51.080	10.600	10.770	83.000	8.900	7.200
721101	50.000	10.000	10.920	88.000	9.600	7.300
721801	999.000	999.000	999.000	999.000	999.000	999.000
722301	999.000	999.000	999.000	999.000	999.000	999.000
722601	51.080	10.600	10.770	93.000	10.000	7.200
720202	46.040	7.800	11.550	81.000	9.400	7.300
720902	44.060	6.700	11.880	71.000	8.400	7.400
721602	46.040	7.800	11.550	50.000	5.800	7.000
722402	46.940	8.300	11.410	42.000	4.800	8.000
720103	48.920	9.400	11.110	59.000	6.600	7.200
720803	50.000	10.000	10.920	73.000	8.000	8.000
721703	53.060	11.700	10.500	66.000	6.880	7.500
722203	50.000	10.000	10.920	75.000	8.200	8.000
723003	55.400	13.000	10.200	76.000	7.800	7.000
720604	57.200	14.000	9.980	80.000	8.000	7.750
721304	59.000	15.000	9.760	66.000	6.400	6.750
722004	65.300	18.500	9.100	66.000	6.000	7.000
722604	66.200	19.000	9.010	75.000	6.800	7.500
720305	66.200	19.000	9.010	84.000	7.600	7.500
721005	65.300	18.500	9.100	84.000	7.600	7.500
721705	69.800	21.000	8.680	92.000	8.000	7.250
722505	72.500	22.500	8.460	83.000	7.000	7.750
722905	73.400	23.000	8.380	91.000	7.600	7.750
720806	76.100	24.500	8.180	98.000	8.000	7.850
721506	80.600	27.000	7.860	999.000	999.000	7.700
722[illegible]	73.940	23.300	8.360	84.000	7.000	7.550
722806	76.100	24.500	8.180	86.000	7.000	7.700
720407	77.000	25.000	8.110	86.000	7.000	7.200
721307	78.800	26.000	7.990	100.000	8.000	7.100
722007	80.960	27.200	7.840	89.000	7.000	7.900
722607	80.960	27.200	7.840	89.000	7.000	7.650
720308	80.240	26.800	7.900	89.000	7.000	8.500
721008	81.140	27.300	7.840	77.000	6.000	7.500
721708	82.040	27.800	7.780	90.000	7.000	8.250
722408	82.040	27.800	7.780	103.000	8.000	8.300
723108	82.040	27.800	7.780	77.000	6.000	8.250
720709	80.960	27.200	7.840	89.000	7.000	8.250
721505	79.340	26.300	7.960	88.000	7.000	8.400
721809	78.440	25.800	8.020	87.000	7.000	8.300
722509	81.500	27.500	7.810	90.000	7.000	7.750
720210	73.940	23.300	8.360	96.000	8.000	8.500
720910	70.880	21.600	8.610	81.000	7.000	8.600
721610	69.980	21.100	8.680	81.000	7.000	7.600
722310	64.220	17.900	9.200	999.000	999.000	8.500
723010	61.520	16.400	9.480	999.000	999.000	8.750
720611	60.440	15.800	9.620	999.030	999.000	8.420
721311	62.600	17.000	9.370	999.030	999.000	8.410
722011	53.600	12.000	10.430	999.000	999.000	8.750
722711	50.900	10.500	10.800	999.040	999.000	8.400
720412	50.000	10.000	10.920	999.030	999.000	8.350
721112	51.800	11.000	10.670	999.000	999.000	8.410
721712	45.860	7.700	11.580	999.000	999.000	8.600
722612	47.840	8.800	11.270	999.000	999.000	8.650
730101	49.820	9.900	10.980	999.000	999.000	8.400
730901	41.900	5.500	12.220	999.000	999.000	8.390
731501	42.800	6.000	12.060	999.000	999.000	8.800
732201	48.200	9.000	11.190	999.000	999.000	8.200
730202	48.200	9.000	11.190	999.000	999.000	8.390
730502	48.200	9.000	11.190	999.000	999.000	8.350
731202	42.800	6.000	12.060	999.000	999.000	8.400
731902	40.640	4.800	12.440	999.000	999.000	8.230
732602	43.520	6.400	11.970	999.000	999.000	8.420
730503	50.900	10.500	10.800	999.000	999.000	8.200
731203	59.000	15.000	9.760	999.000	999.000	8.150
732303	54.320	12.400	10.360	999.000	999.000	7.400
733003	55.760	13.200	10.150	85.000	9.680	8.400
730404	58.100	14.500	9.870	93.000	9.160	8.150
731104	53.780	12.100	10.400	79.000	8.200	8.190
731604	56.480	13.600	10.060	82.000	8.200	8.150
732304	62.000	16.670	9.430	76.000	7.200	8.500
733004	62.000	16.670	9.430	87.000	8.200	7.800
730705	62.000	16.670	9.430	81.000	7.600	8.480
731405	68.000	20.000	8.840	999.000	999.000	8.550
732205	68.000	20.000	8.840	82.000	7.240	8.150
732905	69.500	20.830	8.710	87.000	7.600	8.120
730406	72.500	22.500	8.460	82.000	6.920	8.000
731106	76.200	24.560	8.170	86.000	7.000	8.000

WHITESBURG BOAT DOCK

DATE	TEMP F	TEMP C	MAX DO	% DO	PPM DO	PH
742603	999.000	999.000	999.000	999.000	999.000	999.000
740204	54.000	12.220	10.380	82.000	8.500	8.200
740904	999.000	999.000	999.000	999.000	999.000	999.000
741604	57.990	14.440	9.880	86.000	8.500	8.200
742304	62.010	16.670	9.440	85.000	8.000	8.000
743004	999.000	999.000	999.000	999.000	999.000	999.000
740605	66.990	19.440	8.940	84.000	7.500	7.900
741305	73.990	23.330	8.340	96.000	8.000	7.900
742005	73.990	23.330	8.340	91.000	7.600	8.000
742705	73.000	22.780	8.410	89.000	7.500	8.200
740406	73.000	22.780	8.410	83.000	7.000	8.600
741106	72.000	22.220	8.500	71.000	6.000	6.900
741806	75.510	24.170	8.220	85.000	7.000	8.600
742506	75.990	24.440	8.190	73.000	6.000	8.200
740207	75.990	24.440	8.190	61.000	5.000	8.300
740907	79.000	26.110	7.970	69.000	5.500	8.550
741607	81.000	27.220	7.840	77.000	6.000	8.500
742307	82.000	27.780	7.770	51.000	4.000	8.650
743007	81.000	27.220	7.840	64.000	5.000	8.500
740608	76.010	25.560	8.040	75.000	6.000	7.800
741308	79.000	26.110	7.970	75.000	6.000	8.400
742208	84.000	28.890	7.650	105.000	8.000	8.500
742708	82.500	28.060	7.740	90.000	7.000	7.700
740409	78.00	25.560	8.040	87.000	7.000	8.000
741009	75.000	23.890	8.260	73.000	6.000	7.700
741709	76.000	24.440	8.190	73.000	6.000	7.700
742409	73.000	22.780	8.410	71.000	6.000	7.800
740110	71.000	21.670	8.580	89.000	7.600	7.800
740810	66.000	18.890	9.030	89.000	8.000	7.550
741510	66.000	19.170	8.980	84.000	7.500	7.780
742410	66.200	19.000	9.010	84.000	7.600	7.950
743010	999.000	999.000	999.000	999.000	999.000	999.000
740511	63.900	17.720	9.240	87.000	8.000	8.250
741211	999.000	999.000	999.000	999.000	999.000	999.000
742011	54.000	12.220	10.380	106.000	11.000	7.850
742611	50.500	10.280	10.850	83.000	9.000	8.400
740712	40.000	4.440	12.570	80.000	10.000	7.650
741112	41.000	5.000	12.370	65.000	10.500	7.600
741712	44.000	6.670	11.860	84.000	10.000	8.000
742312	48.000	8.890	11.220	85.000	9.500	7.950
750201	45.500	7.500	11.610	85.000	9.900	7.900
750801	53.600	12.000	10.430	91.000	9.500	7.350
751401	50.000	10.000	10.920	92.000	10.000	7.600
752101	46.400	8.000	11.470	96.000	11.000	7.750
752801	45.000	7.220	11.700	94.000	11.000	8.200
750402	999.000	999.000	999.000	999.000	999.000	999.000
751402	51.000	10.560	10.790	93.000	10.000	7.780
752002	50.000	10.000	10.920	92.000	10.000	7.730
752502	51.000	10.560	10.780	102.000	11.000	7.650
750403	51.500	10.830	10.720	75.000	8.000	7.700
751103	999.000	999.000	999.000	999.000	999.000	999.000
751803	46.000	7.780	11.530	87.000	10.000	7.120
752503	54.500	12.500	10.310	82.000	8.500	7.280
750104	56.000	13.330	10.130	99.000	10.000	7.120
750704	53.500	11.940	10.450	100.000	10.500	7.100
751504	54.000	11.110	10.650	94.000	10.000	7.600
752204	58.500	14.720	9.830	102.000	10.000	7.550
750105	65.000	18.330	9.130	88.000	8.000	8.900
750805	67.500	19.720	8.890	79.000	7.000	7.800
751605	70.000	21.110	8.670	81.000	7.000	6.800
752405	75.500	24.170	8.220	97.000	8.000	7.200
752805	76.000	24.440	8.190	98.000	8.000	7.800

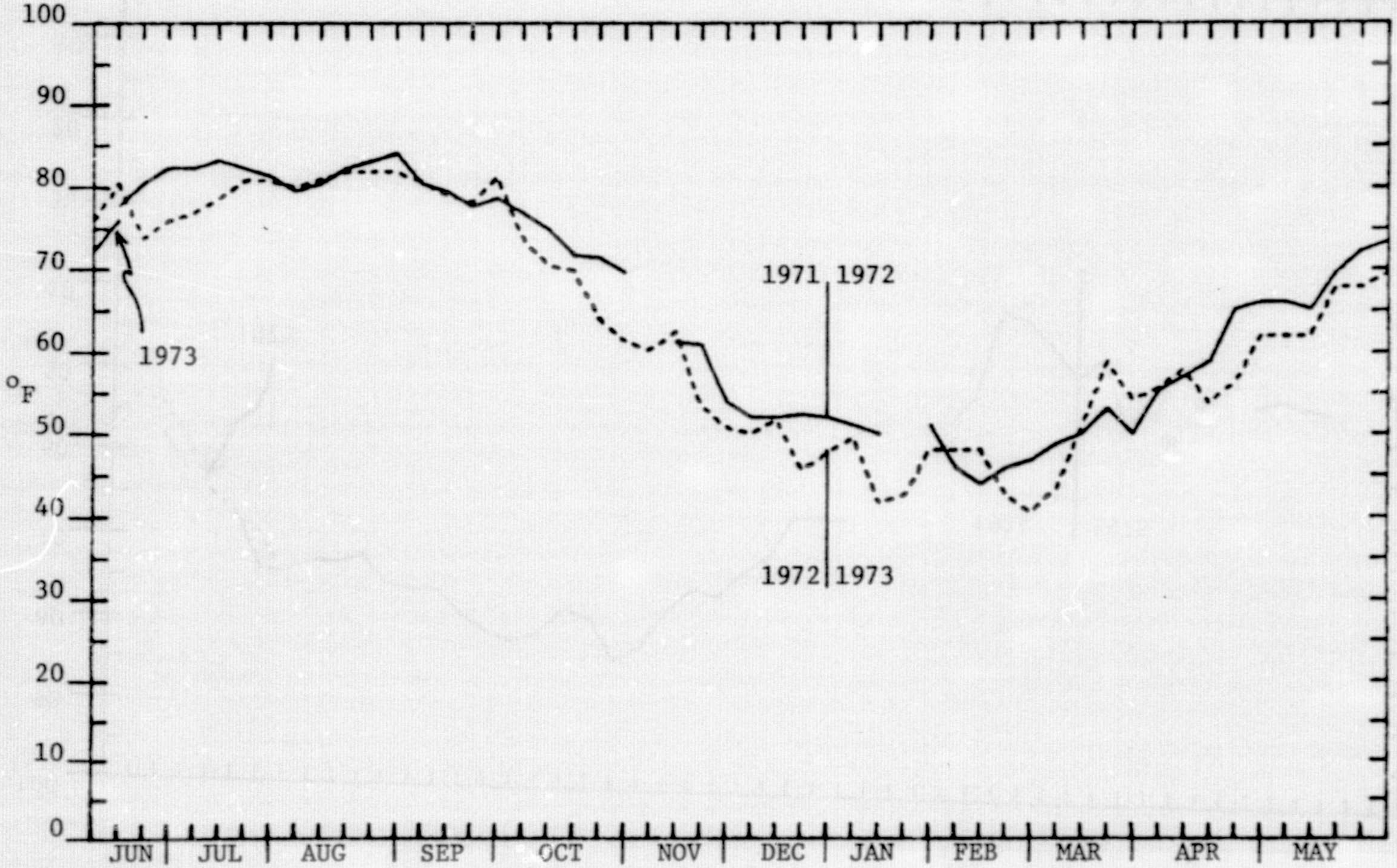

FIGURE 22. WEEKLY TEMPERATURE (°F) OF WHITESBURG FROM JUNE 6, 1971 TO JUNE 15, 1973.

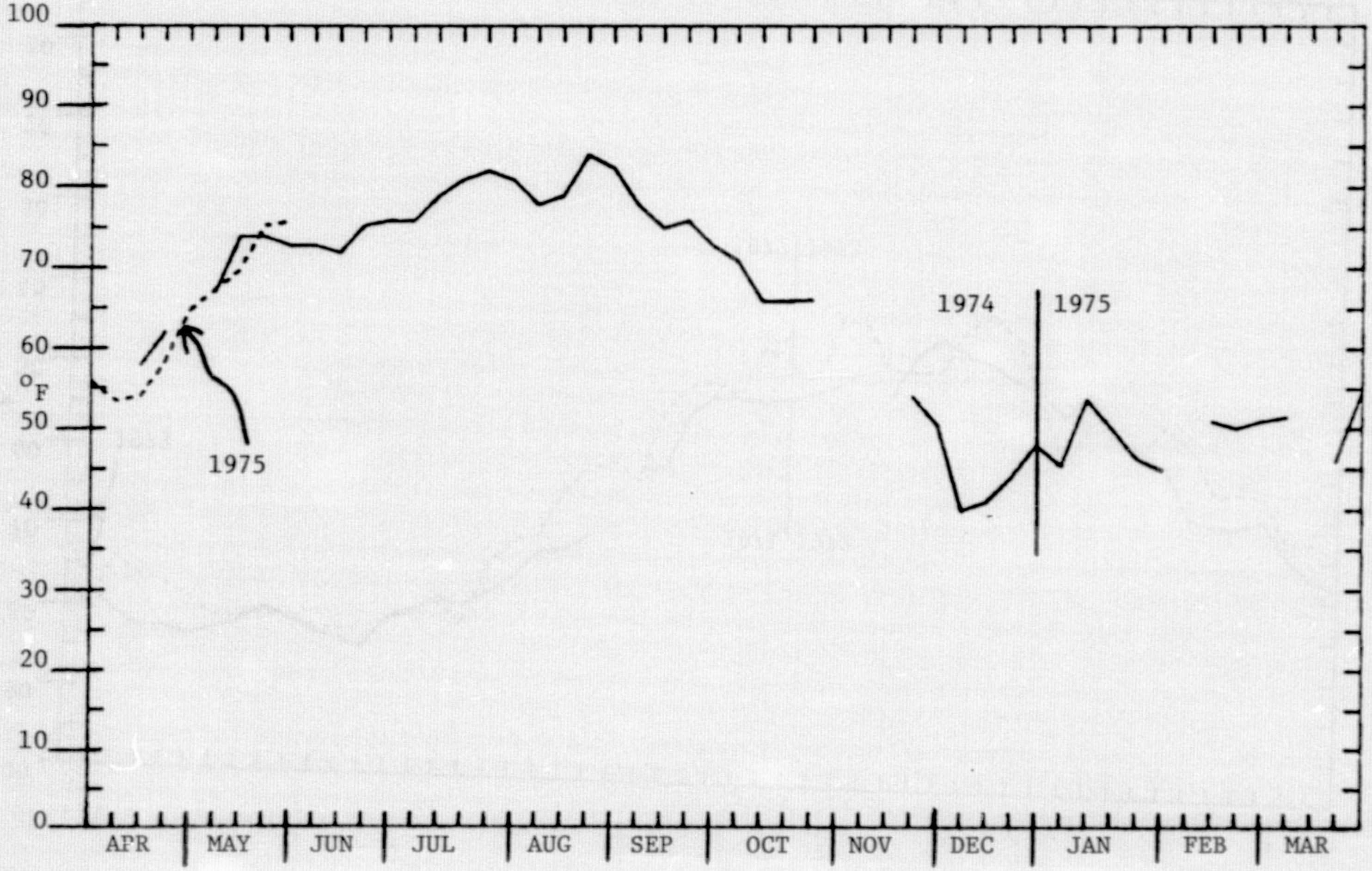

FIGURE 23. WEEKLY TEMPERATURE (°F) OF WHITESBURG FROM MARCH 27, 1974 TO MAY 28, 1975.

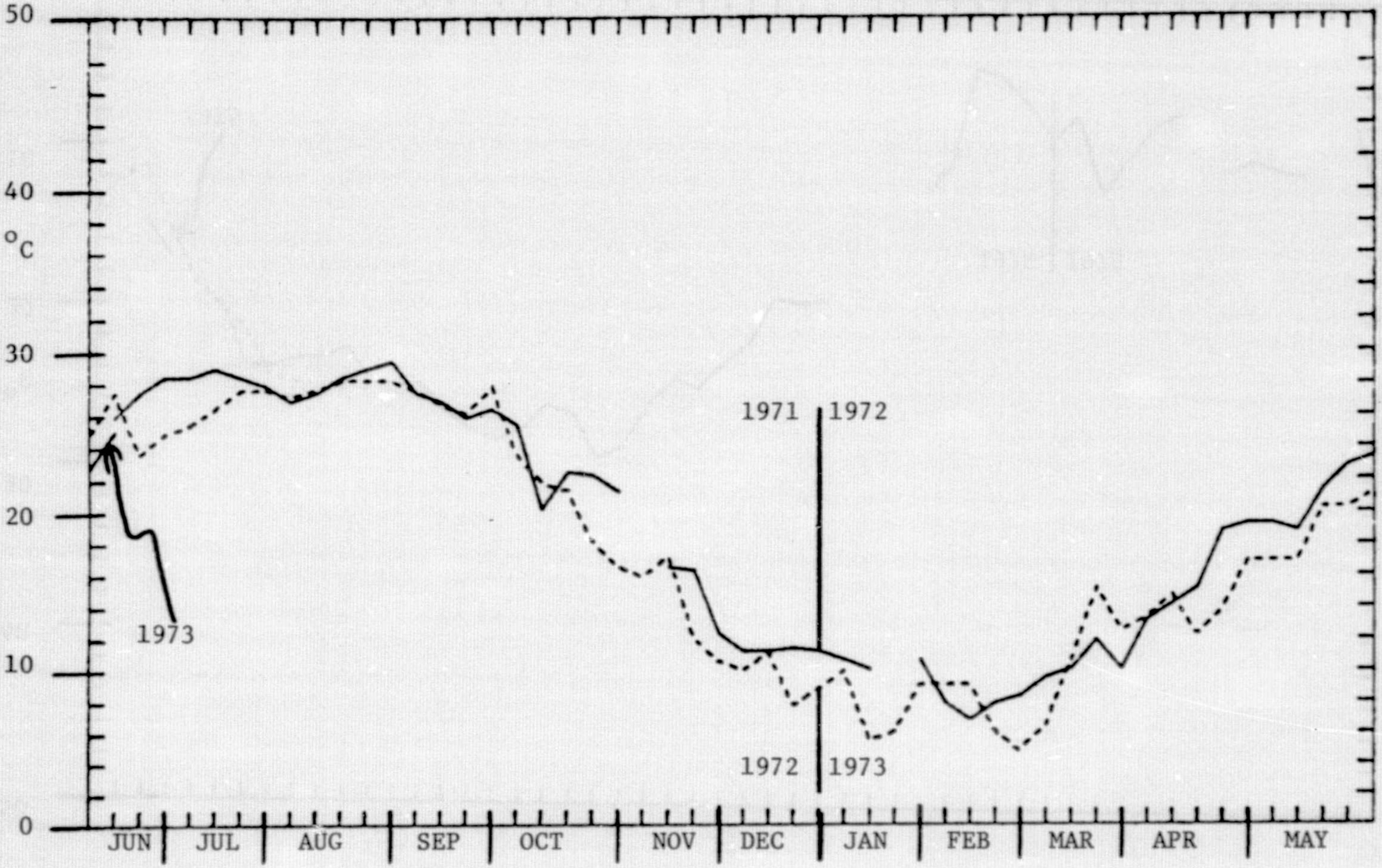

FIGURE 24. WEEKLY TEMPERATURE (°C) OF WHITESBURG FROM JUNE 7, 1971 TO JUNE 11, 1973.

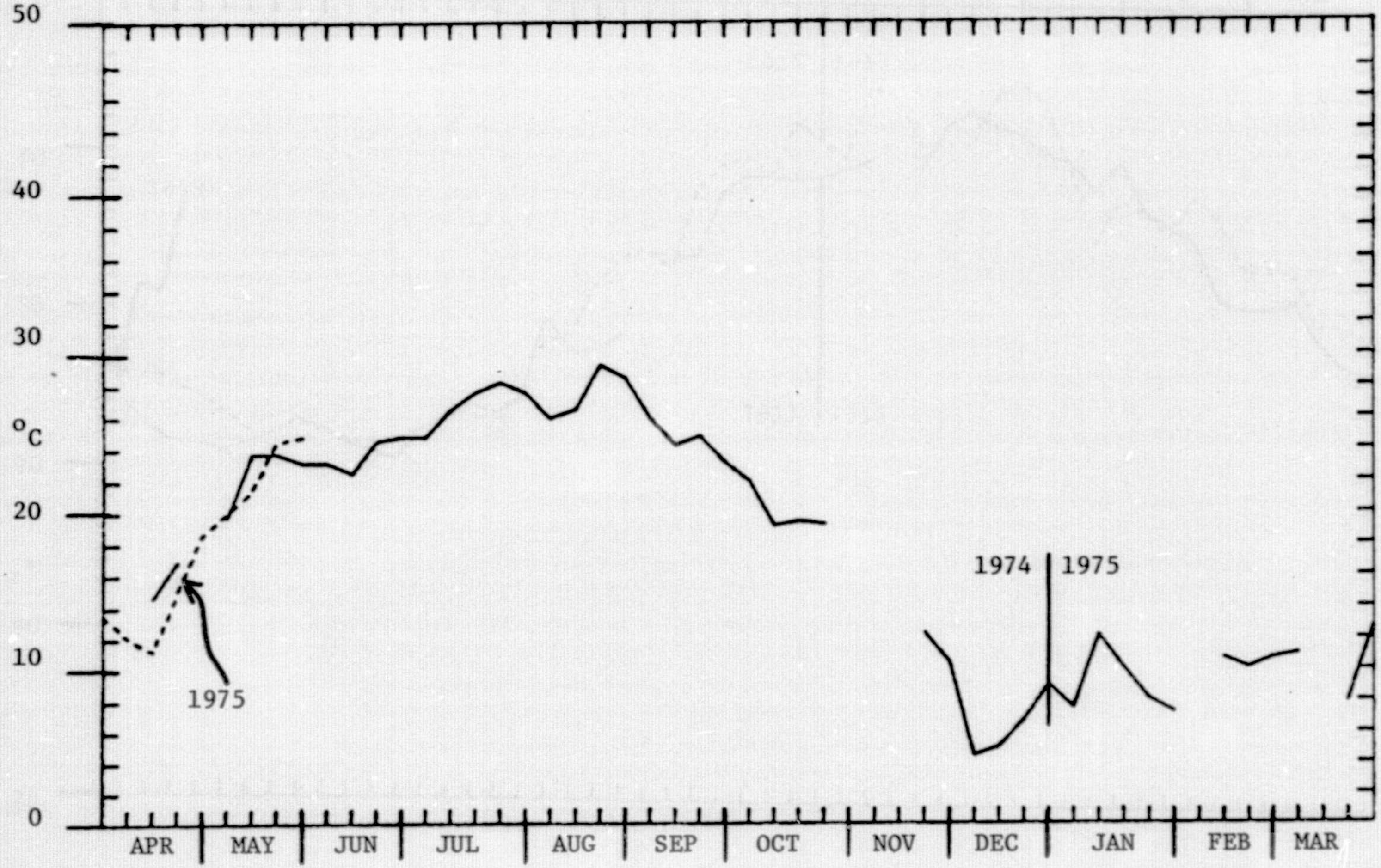

FIGURE 25. WEEKLY TEMPERATURE (°C) OF WHITESBURG FROM MARCH 27, 1974 TO MAY 28, 1975.

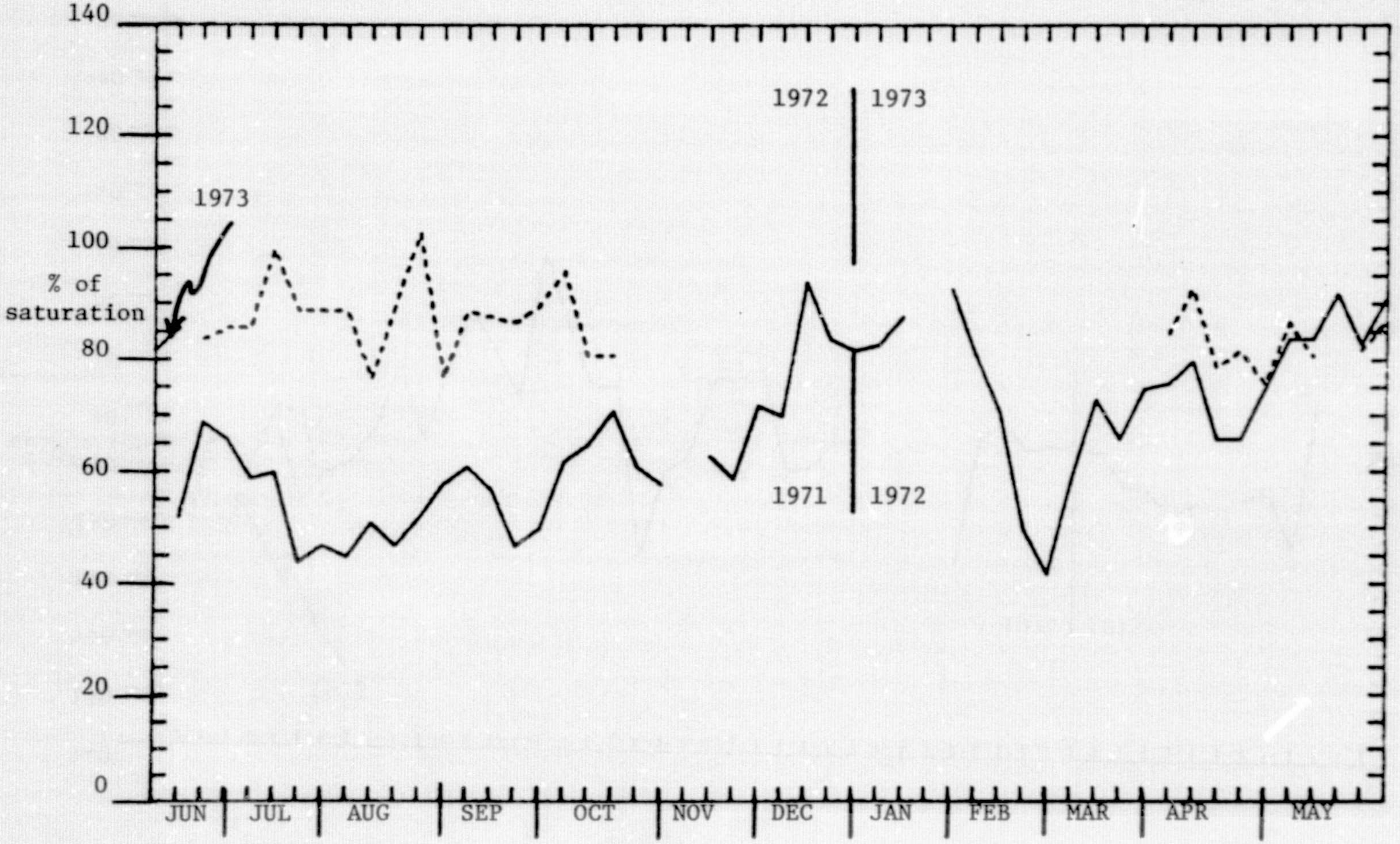

FIGURE 26. WEEKLY OXYGEN PERCENT OF SATURATION FOR WATER TEMPERATURE OF WHITEBURG FROM JUNE 7, 1971 TO JUNE 11, 1973.

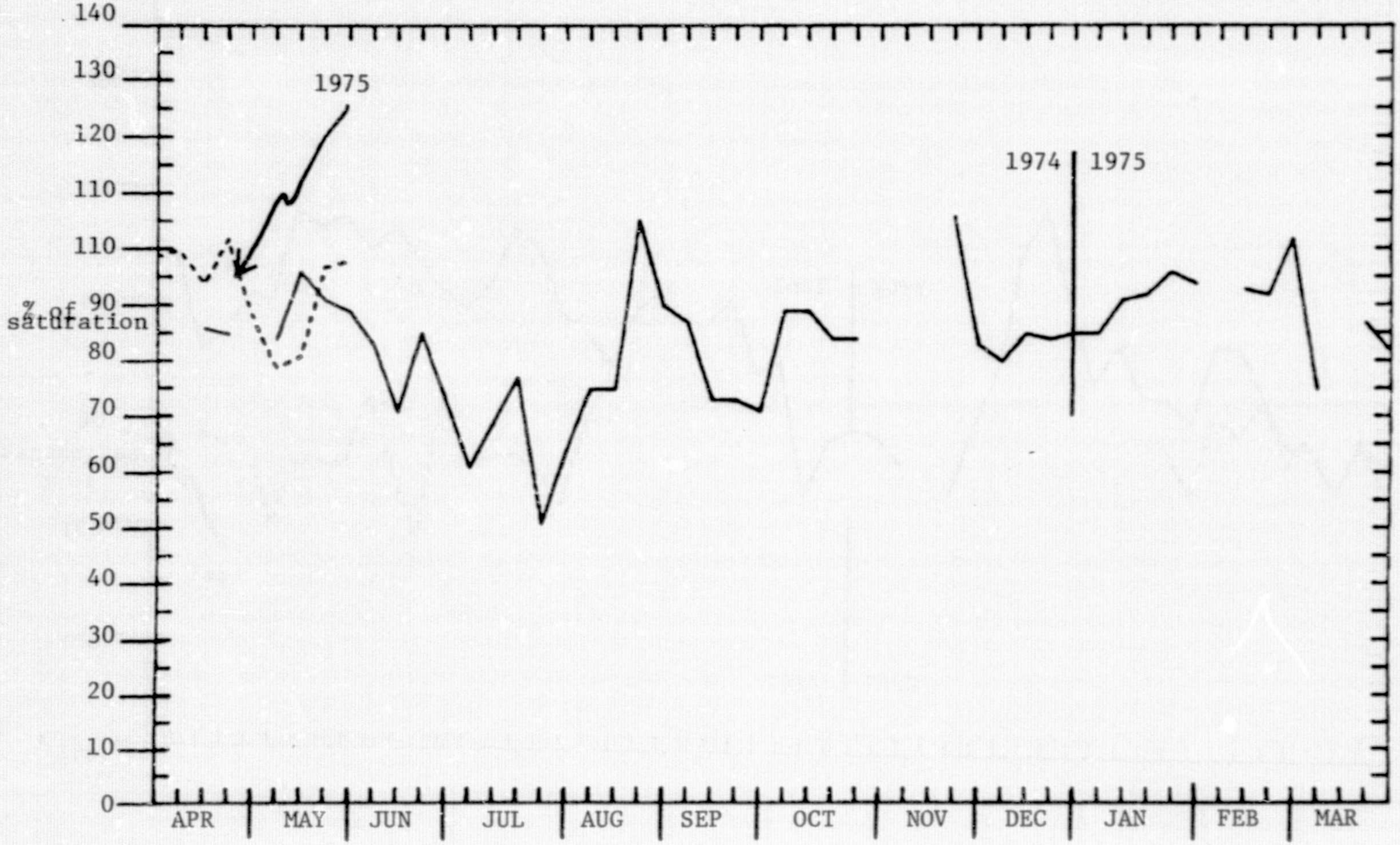

FIGURE 27. WEEKLY DISSOLVED OXYGEN (IN PERCENT OF SATURATION) OF WHITESBURG FROM MARCH 27, 1974 TO MAY 28, 1975.

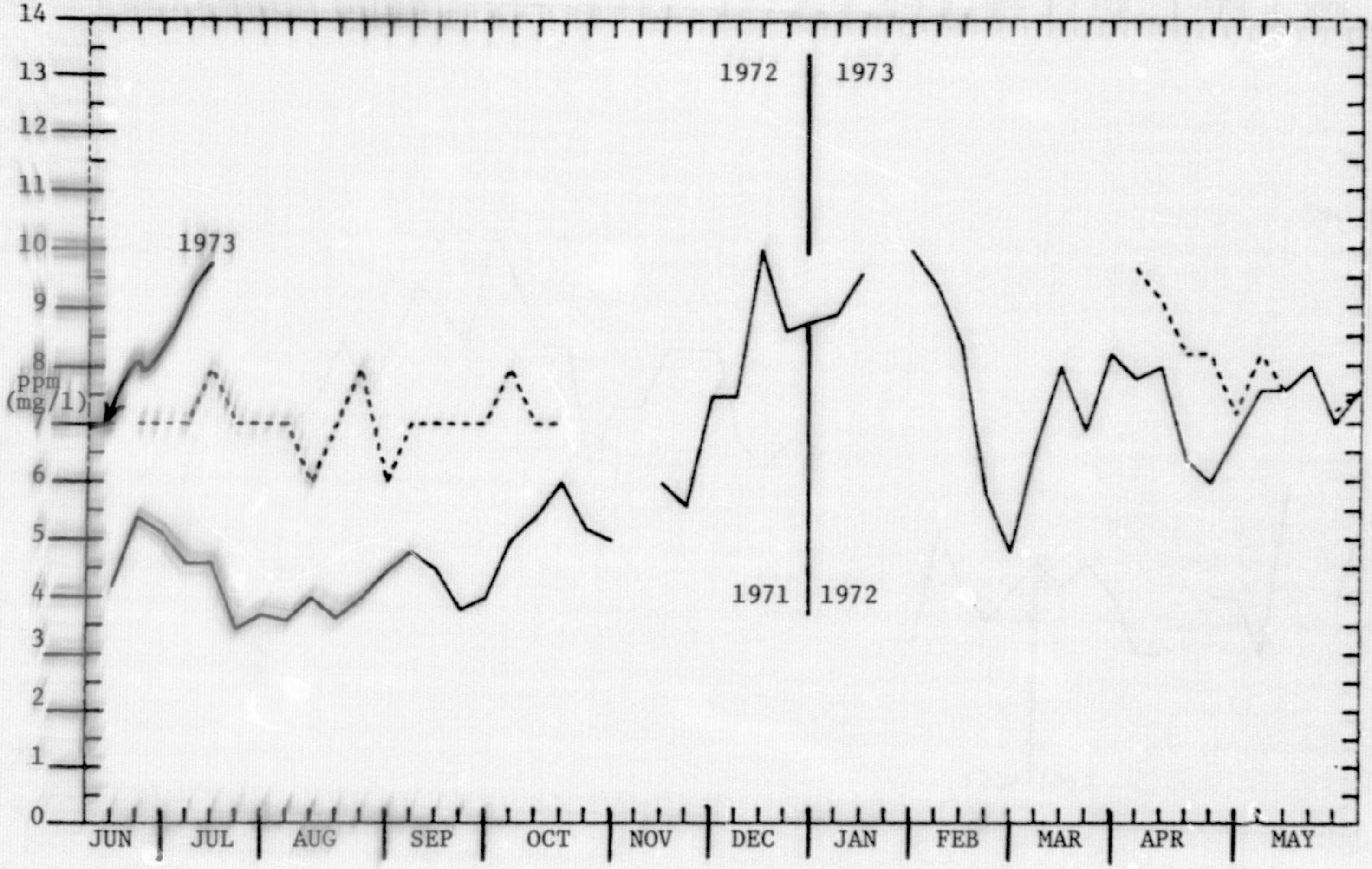

FIGURE 28. WEEKLY ACTUAL DISSOLVED OXYGEN IN PARTS PER MILLION OF WHITESBURG FROM JUNE 7, 1971 TO JULY 11, 1973.

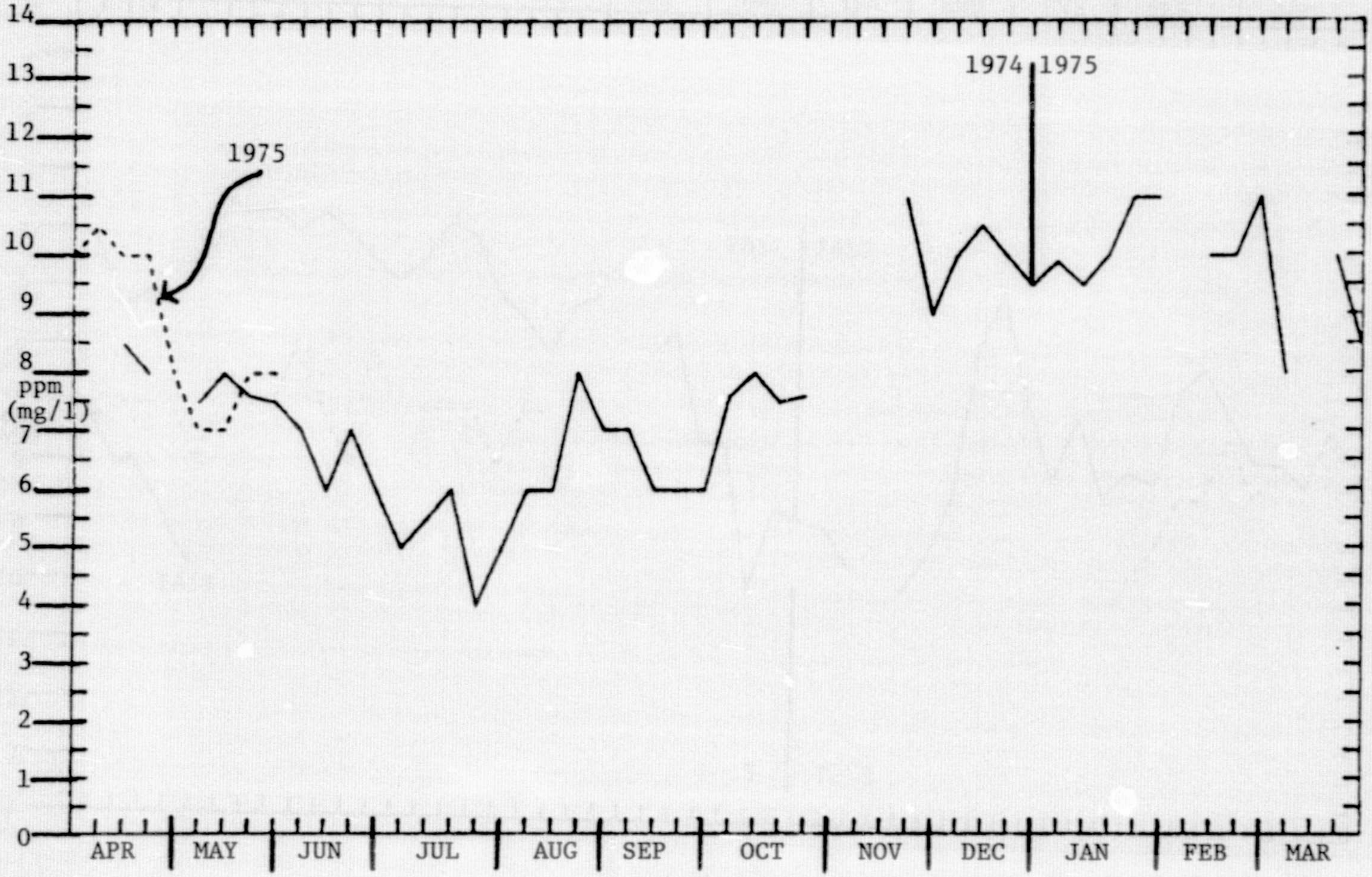

FIGURE 29. WEEKLY DISSOLVED OXYGEN IN PARTS PER MILLION OF WHITESBURG FROM MARCH 27, 1974 TO MAY 28, 1975.

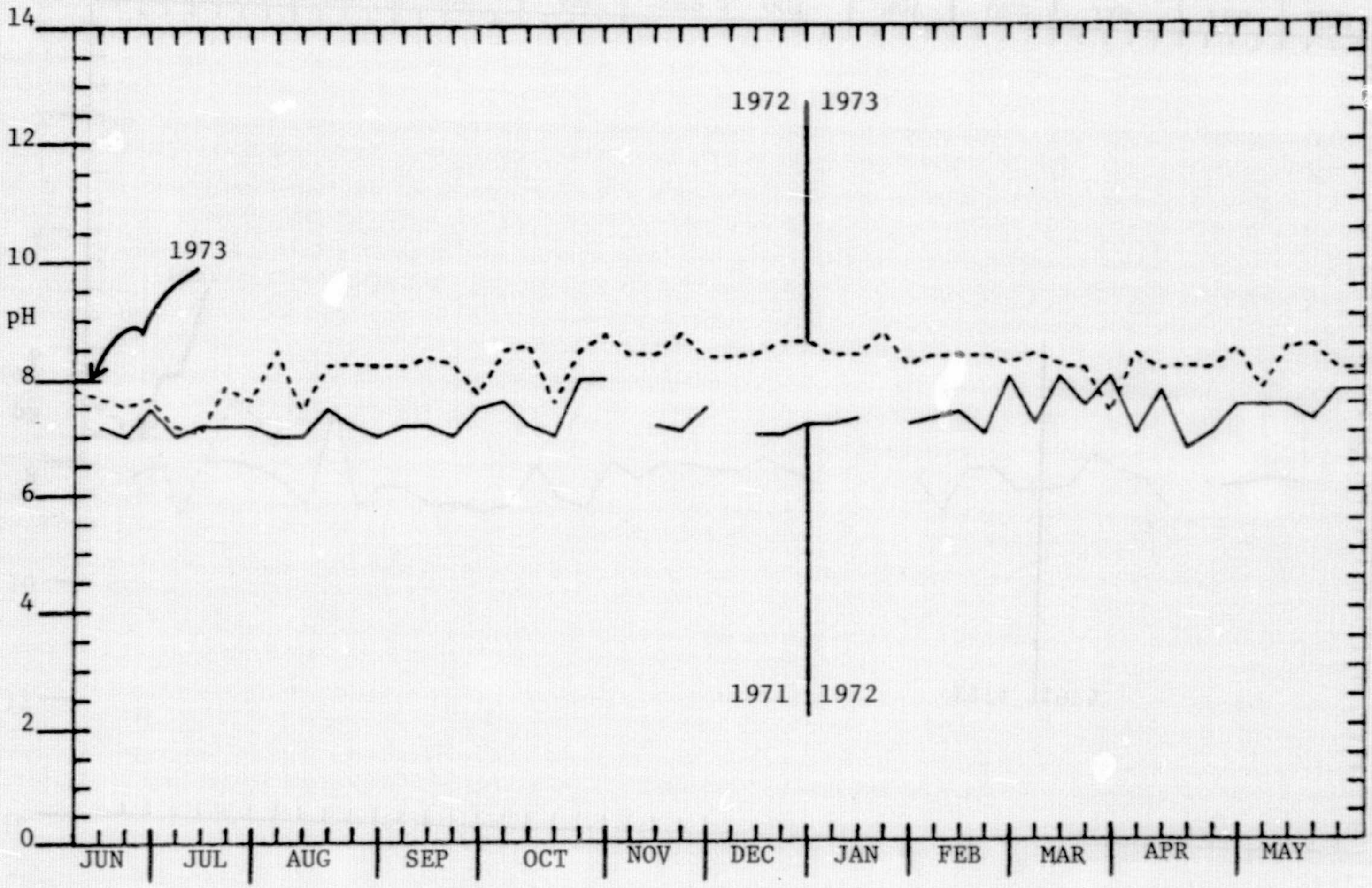

FIGURE 30. WEEKLY pH OF WHITESBURG FROM JUNE 7, 1971 TO JUNE 11, 1973.

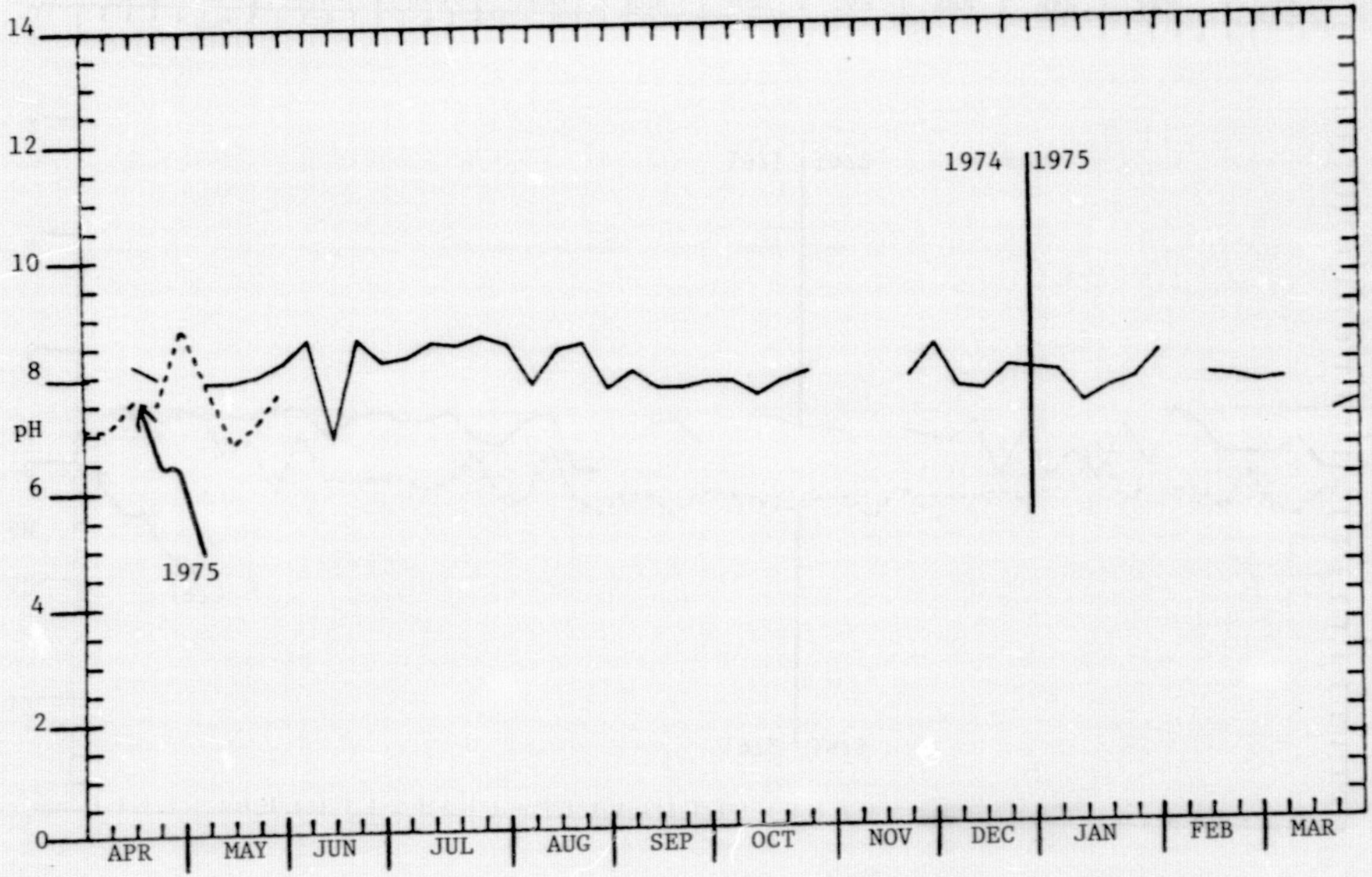

FIGURE 31. WEEKLY pH OF WHITESBURG FROM MARCH 27, 1974 TO MAY 28, 1975.

WHEELER-DECATUR

DATE	TEMP F	TEMP C	MAX DO	% DO	PPM DO	PH
710606	999.000	999.000	999.000	999.000	999.000	999.000
710906	77.000	25.000	8.110	69.000	5.600	7.500
711606	80.600	27.000	7.860	61.000	4.800	8.000
712306	82.400	28.000	7.750	59.000	4.600	7.000
713006	83.300	28.500	7.690	65.000	5.000	7.500
710707	82.400	28.000	7.750	57.000	4.400	7.500
711407	84.200	29.000	7.640	56.000	4.300	7.000
712107	83.300	28.500	7.690	57.000	4.400	7.500
712807	79.700	26.500	7.920	62.000	4.920	7.000
710408	80.600	27.000	7.860	76.000	6.000	7.500
711108	85.100	29.500	7.580	60.000	4.560	7.500
711808	83.300	28.500	7.690	60.000	4.600	7.000
712508	84.200	29.000	7.640	68.000	5.200	7.200
710109	83.300	28.500	7.690	68.000	5.200	7.500
710809	82.400	28.000	7.750	52.000	4.000	8.000
711709	83.300	28.500	7.690	42.000	3.200	8.000
712309	79.700	26.500	7.920	81.000	6.400	7.500
712909	77.000	25.000	8.110	54.000	4.400	7.000
710610	75.020	23.900	8.260	67.000	5.500	7.000
711310	73.040	22.800	8.430	71.000	6.000	8.000
712010	73.040	22.800	8.430	69.000	5.800	9.000
712710	69.800	21.000	8.680	69.000	6.000	8.000
710311	70.340	21.300	8.650	88.000	7.600	8.000
711011	60.980	16.100	9.560	84.000	8.000	7.200
711711	60.980	16.100	9.560	92.000	8.800	7.000
710712	49.460	9.700	11.000	77.000	8.500	7.500
711012	999.000	999.000	999.000	999.000	999.000	999.000
711412	999.000	999.000	999.000	999.000	999.000	999.000
712412	51.260	10.700	10.750	59.000	6.200	7.500
713112	52.700	11.500	10.550	77.000	8.080	7.000
720401	52.700	11.500	10.550	95.000	10.000	7.500
721201	51.980	11.100	10.650	85.000	9.000	7.000
721801	44.960	7.200	11.730	999.000	999.000	7.100
722401	50.900	10.500	10.800	93.000	10.000	7.500
723101	42.080	5.600	12.180	85.000	10.400	7.500
720202	999.000	999.000	999.000	999.000	999.000	999.000
720902	42.080	5.600	12.180	999.000	999.000	7.500
721402	44.960	7.200	11.730	70.000	8.200	8.000
722202	44.060	6.700	11.880	61.000	7.200	7.500
722802	48.020	8.900	11.250	75.000	8.400	7.500
720603	48.920	9.400	11.110	77.000	8.600	7.000
721303	51.980	11.100	10.650	89.000	9.520	7.500
722003	55.040	12.800	10.270	78.000	8.000	7.000
722803	57.200	14.000	9.980	84.000	8.400	7.250
720304	59.000	15.000	9.760	80.000	7.800	7.500
721304	57.200	14.000	9.980	70.000	7.000	8.000
721704	62.600	17.000	9.370	73.000	6.800	7.000
722404	66.200	19.000	9.010	80.000	7.200	7.000
720205	68.000	20.000	8.840	90.000	8.000	7.000
720805	71.600	22.000	8.530	999.000	999.000	7.200
721505	68.000	20.000	8.840	86.000	7.200	7.750
722405	73.400	23.000	8.380	91.000	7.600	7.750
723105	73.400	23.000	8.380	76.000	6.400	6.800
720606	71.060	21.700	8.580	999.000	999.000	7.500
721306	75.020	23.900	8.260	97.000	8.000	7.700
722006	76.100	24.500	8.180	98.000	8.000	7.400
722706	76.100	24.500	8.180	98.000	8.000	7.210
720607	78.080	25.600	8.050	87.000	7.000	7.500
721207	80.600	27.000	7.860	89.000	7.000	8.300
721807	80.600	27.000	7.860	102.000	8.000	8.600
722507	82.040	27.800	7.780	90.000	7.000	7.800
720108	80.960	27.200	7.840	999.000	999.000	7.500
720808	80.960	27.200	7.840	64.000	5.000	7.500
721508	81.140	27.300	7.840	102.000	8.000	7.850
722208	81.320	27.400	7.820	90.000	7.000	8.200
722908	82.940	28.300	7.720	91.000	7.000	7.280
720509	82.400	28.000	7.750	90.000	7.000	8.650
721309	78.800	26.000	7.990	88.000	7.000	8.250
722009	82.400	28.000	7.750	90.000	7.000	7.300
722709	78.980	26.100	7.990	88.000	7.000	8.350
720410	73.040	22.800	8.430	95.000	8.000	8.450
721110	69.440	20.800	8.730	92.000	8.000	8.500
722010	66.020	18.900	9.030	78.000	7.000	7.200
722510	62.960	17.200	9.330	999.000	999.000	8.420
720311	62.420	16.900	9.390	999.000	999.000	8.650
721011	59.000	15.000	9.760	999.000	999.000	8.600
721511	56.300	13.500	10.090	999.000	999.000	8.550
722211	53.600	12.000	10.430	999.000	999.000	8.650
722911	49.100	9.500	11.060	999.000	999.000	8.600
720612	50.900	10.500	10.800	999.000	999.000	8.550
721312	51.008	10.560	10.800	999.000	999.000	8.320
722112	47.120	8.400	11.380	999.000	999.000	8.600
722912	47.480	8.600	11.300	999.000	999.000	8.330
730501	48.002	8.890	11.250	999.000	999.000	8.320
731001	42.440	5.800	12.120	999.000	999.000	8.360
731901	49.100	9.500	11.060	999.000	999.000	8.300
732401	999.000	999.000	999.000	999.000	999.000	999.000
733101	44.600	7.000	11.760	999.000	999.000	8.600
730802	48.992	9.440	11.080	999.000	999.000	8.350
731602	44.996	7.220	11.700	999.000	999.000	8.450
732202	41.360	5.200	12.340	999.000	999.000	8.360
732602	999.000	999.000	999.000	999.000	999.000	999.000
730203	47.300	8.500	11.330	999.000	999.000	7.850
730903	55.400	13.000	10.200	999.000	999.000	8.250
732803	54.500	12.500	10.310	86.000	8.880	7.650
733003	999.000	999.000	999.000	999.000	999.000	999.000
730604	56.300	13.500	10.090	79.000	8.000	7.800
731304	52.160	11.200	10.620	75.000	8.000	8.200
731804	57.740	14.300	9.930	72.000	7.140	8.000
732704	62.000	16.670	9.430	81.000	7.680	8.320
730405	64.000	17.790	9.220	87.000	8.000	8.200
731105	66.500	19.170	8.980	77.000	6.920	8.200
731805	67.500	19.720	8.890	70.000	6.200	8.420
732505	69.000	20.560	8.750	69.000	6.000	9.600
730106	70.000	21.110	8.670	83.000	7.200	8.100
730806	74.500	23.610	8.300	81.000	6.760	7.400
731506	75.000	23.890	8.260	999.000	999.000	7.350

WHEELER-DECATUR

DATE	TEMP F	TEMP C	MAX DO	% DO	PPM DO	PH
742703	52.000	11.110	10.650	94.000	10.000	8.680
740304	60.490	15.830	9.600	94.000	9.000	8.000
741004	56.190	13.440	10.100	99.000	10.000	8.000
741704	58.500	14.720	9.830	102.000	10.000	8.200
742404	61.500	16.390	9.480	105.000	10.000	8.250
740105	66.000	18.890	9.030	100.000	9.000	7.600
740805	66.760	19.310	8.960	100.000	9.000	8.100
741505	999.000	999.000	999.000	999.000	999.000	999.000
742205	73.000	22.780	8.410	95.000	8.000	8.100
742905	71.010	21.670	8.580	82.000	7.000	8.600
740506	73.000	22.780	8.410	83.000	7.000	8.550
741206	75.510	24.170	8.220	97.000	8.000	8.080
741906	76.500	24.720	8.150	98.000	8.000	8.200
742606	75.990	24.440	8.190	85.000	7.000	7.600
740307	999.000	999.000	999.000	999.000	999.000	999.000
741007	80.010	26.670	7.900	101.000	8.000	7.700
741707	84.000	28.890	7.650	78.000	6.000	7.750
742407	84.990	29.440	7.590	79.000	6.000	7.400
743107	84.000	28.890	7.650	78.000	6.000	7.600
740708	82.000	27.780	7.770	90.000	7.000	6.500
741408	80.010	26.670	7.900	89.000	7.000	8.500
742108	84.000	28.890	7.650	92.000	7.000	8.250
742808	84.500	29.170	7.610	79.000	6.000	8.000
740409	78.000	25.560	8.040	75.000	6.000	7.900
741109	75.500	24.170	8.220	97.000	8.000	8.200
741809	76.000	24.440	8.190	85.000	7.000	7.900
742509	72.000	22.220	8.500	82.000	7.000	7.800
740210	69.000	20.560	8.750	91.000	8.000	8.000
740910	65.000	18.330	9.130	99.000	9.000	7.520
741610	65.500	18.610	9.080	88.000	8.000	7.450
742310	62.000	16.670	9.430	95.000	9.000	7.950
743010	61.500	16.390	9.480	95.000	9.000	7.550
740611	64.000	17.780	9.220	108.000	10.000	7.400
751311	57.000	13.890	10.000	110.000	11.000	7.300
742011	55.000	12.780	10.240	98.000	10.000	7.400
742711	52.000	11.110	10.650	103.000	11.000	8.500
740612	44.800	7.110	11.730	94.000	11.000	7.890
741112	42.800	6.000	12.060	100.000	12.000	8.150
741812	41.800	5.440	12.250	90.000	11.000	7.600
742412	999.000	999.000	999.000	999.000	999.000	999.000
743112	47.500	8.610	11.300	999.000	999.000	7.300
750801	45.000	7.220	11.700	85.000	10.000	7.700
751501	41.500	5.280	12.280	81.000	10.000	7.700
752401	42.900	6.060	12.030	83.000	10.000	7.300
752901	46.000	7.780	11.520	104.000	12.000	7.500
750702	44.000	6.670	11.850	51.000	6.000	7.520
751202	46.500	8.060	11.450	105.000	12.000	7.500
751902	50.100	10.060	10.900	64.000	7.000	8.200
752502	47.800	8.780	11.250	80.000	9.000	7.850
750503	46.600	8.110	11.440	105.000	12.000	7.600
751203	999.000	999.000	999.000	999.000	999.000	999.000
751903	50.000	10.000	10.920	101.000	11.000	7.100
752603	53.000	11.670	10.510	105.000	11.000	9.300
750204	54.000	12.220	10.380	106.000	11.000	7.700
750904	54.500	12.500	10.310	78.000	8.000	7.300
751604	55.000	12.780	10.240	98.000	10.000	7.900
752304	60.750	15.970	9.560	105.000	10.000	7.740
753004	65.000	18.330	9.130	88.000	8.000	7.900
750705	68.500	20.000	8.840	68.000	6.000	7.400
751405	69.500	20.830	8.710	80.000	7.000	7.900
752405	78.000	25.560	8.040	87.000	7.000	7.500
752805	76.000	24.440	8.190	73.000	6.000	7.200

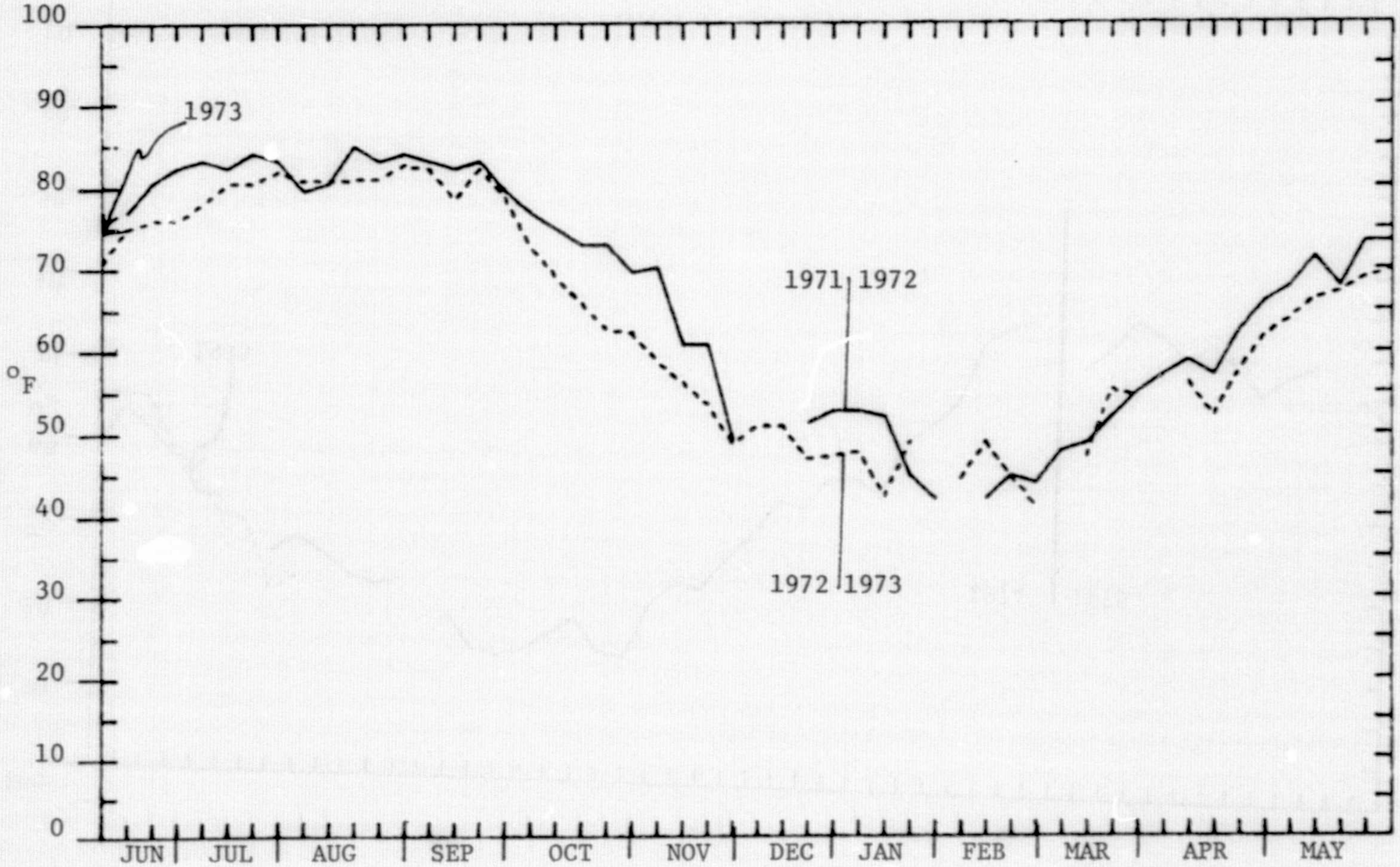

FIGURE 32. WEEKLY TEMPERATURE (°F) OF WHEELER FROM JUNE 6, 1971 TO JUNE 15, 1973.

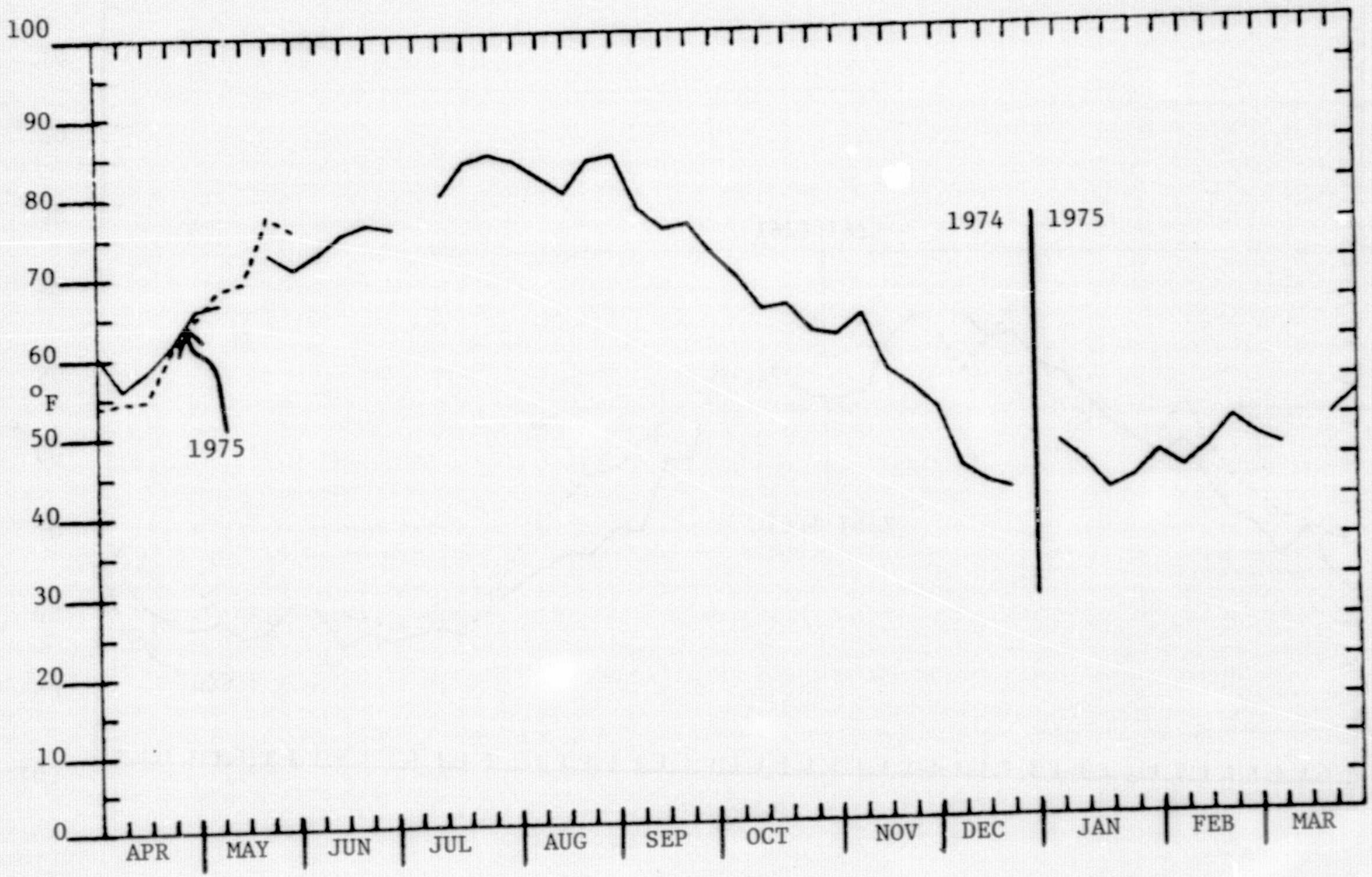

FIGURE 33. WEEKLY TEMPERATURE (°F) OF WHEELER FROM MARCH 27, 1974 TO MAY 28, 1975.

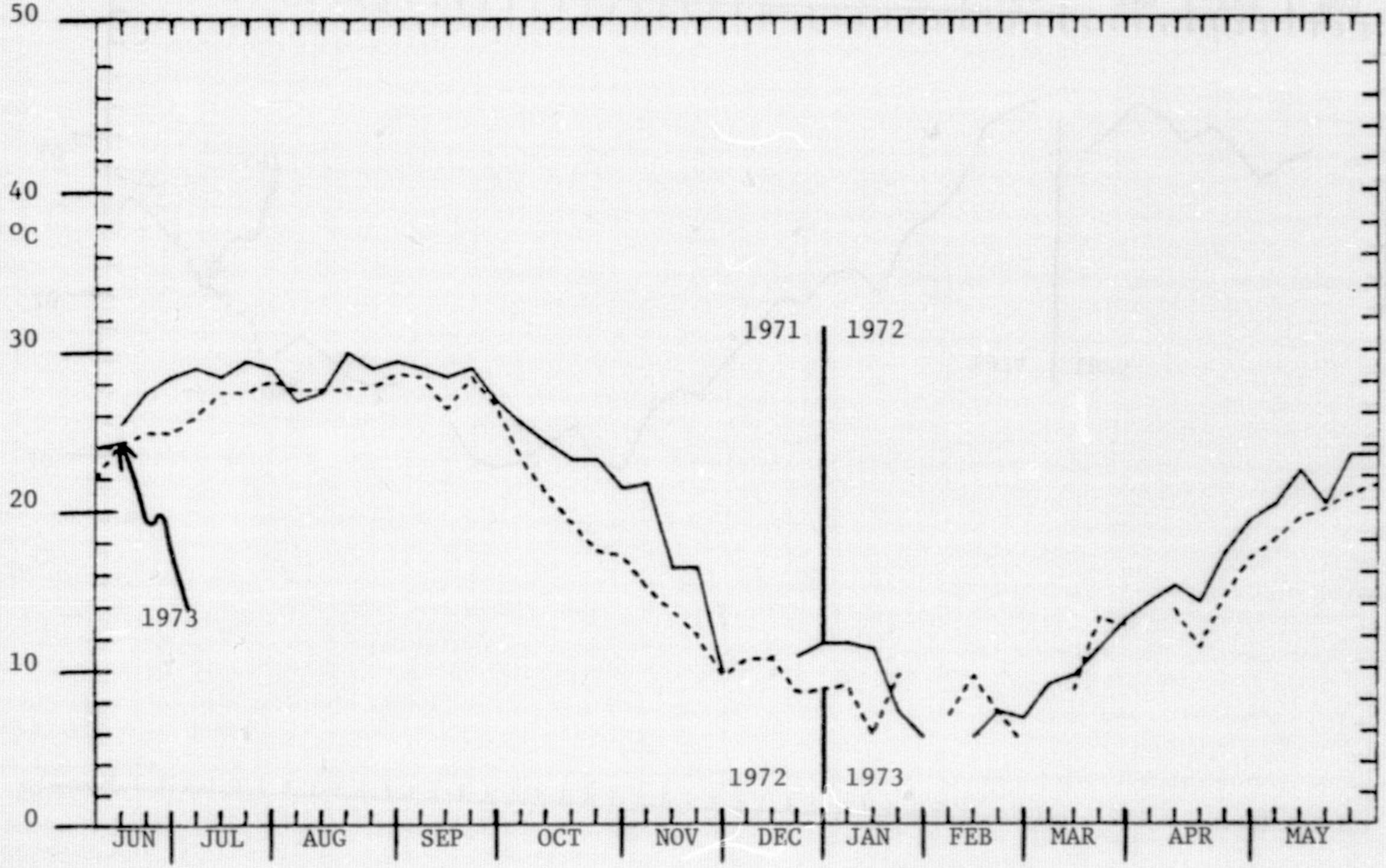

FIGURE 34. WEEKLY TEMPERATURE (°C) OF WHEELER FROM JUNE 6, 1971 TO JUNE 15, 1973.

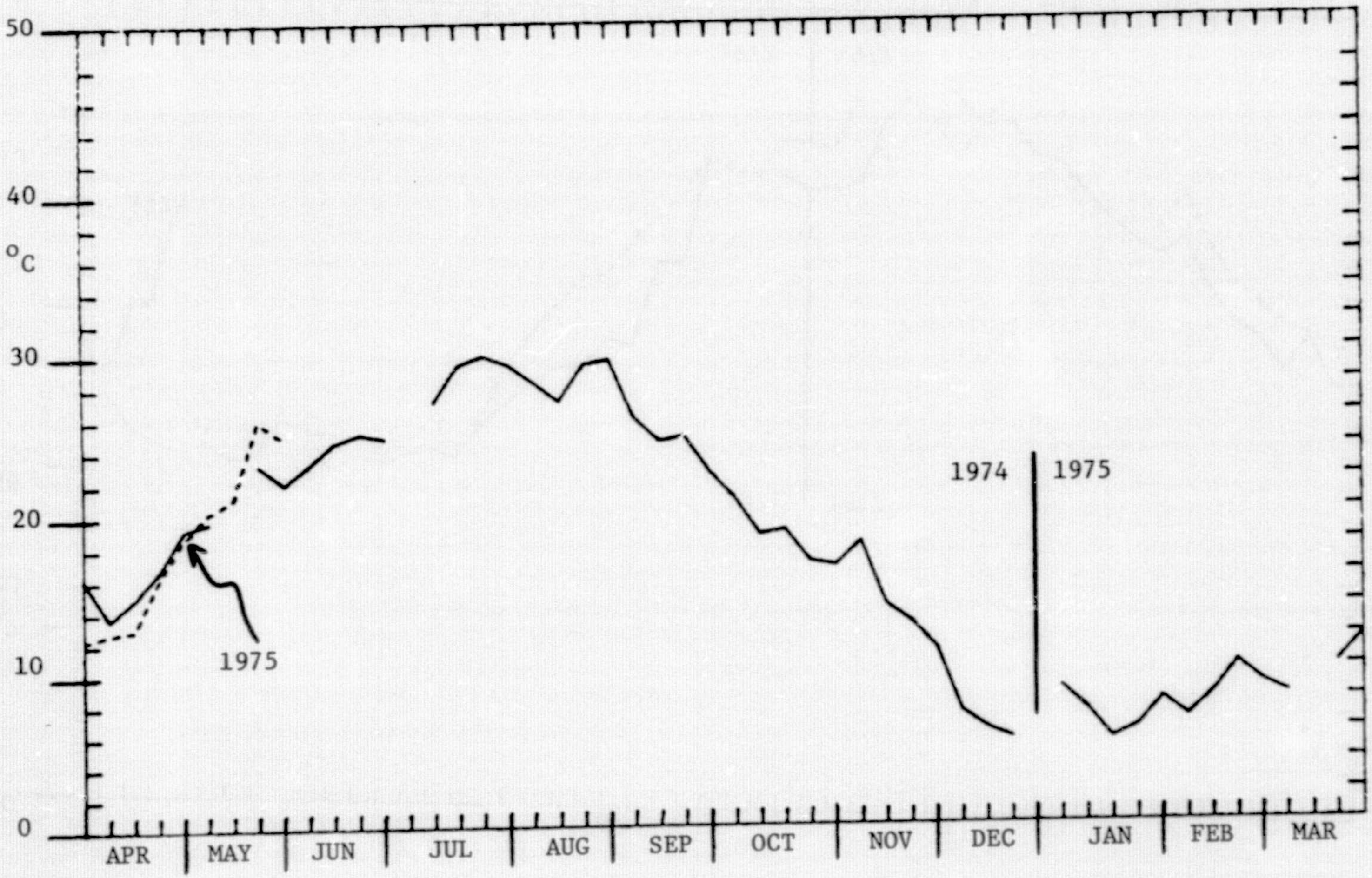

FIGURE 35. WEEKLY TEMPERATURE (°C) OF WHEELER FROM MARCH 27, 1974 TO MAY 28, 1975.

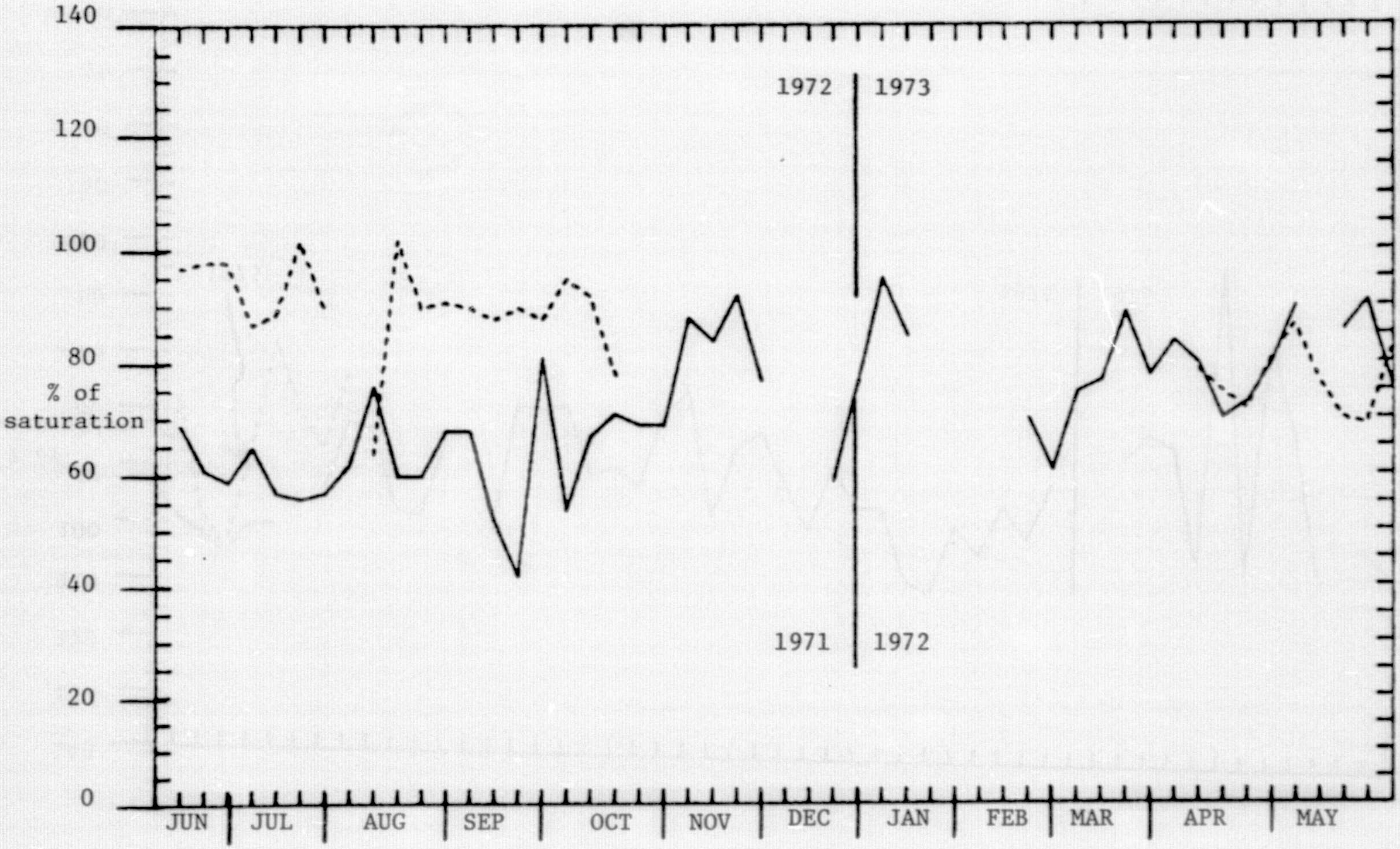

FIGURE 36. WEEKLY OXYGEN PERCENT OF SATURATION FOR WATER TEMPERATURE OF WHEELER FROM JUNE 6, 1971 TO JUNE 15, 1973.

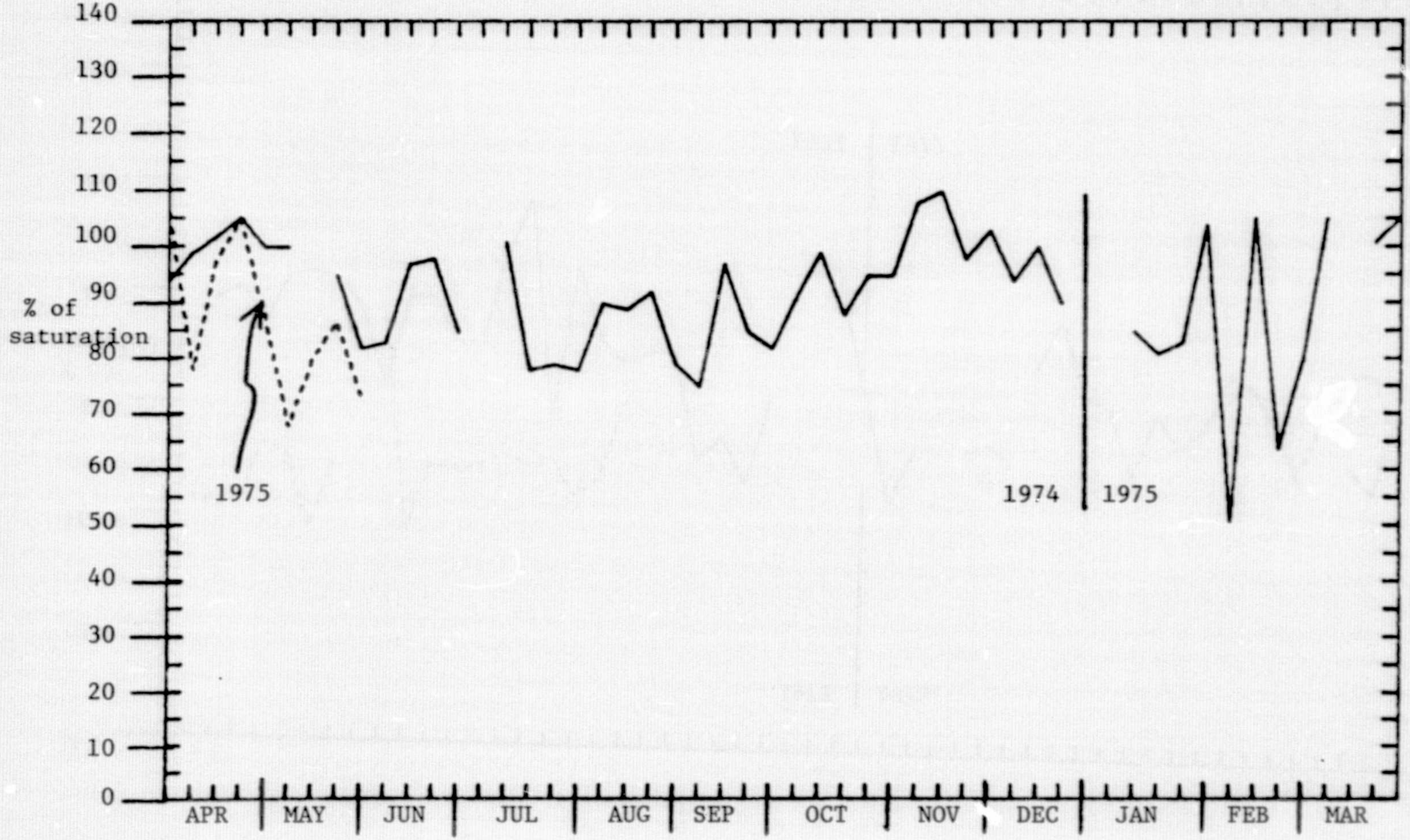

FIGURE 37. WEEKLY DISSOLVED OXYGEN (IN PERCENT OF SATURATION) OF WHEELER FROM MARCH 27, 1974 TO MAY 28, 1975.

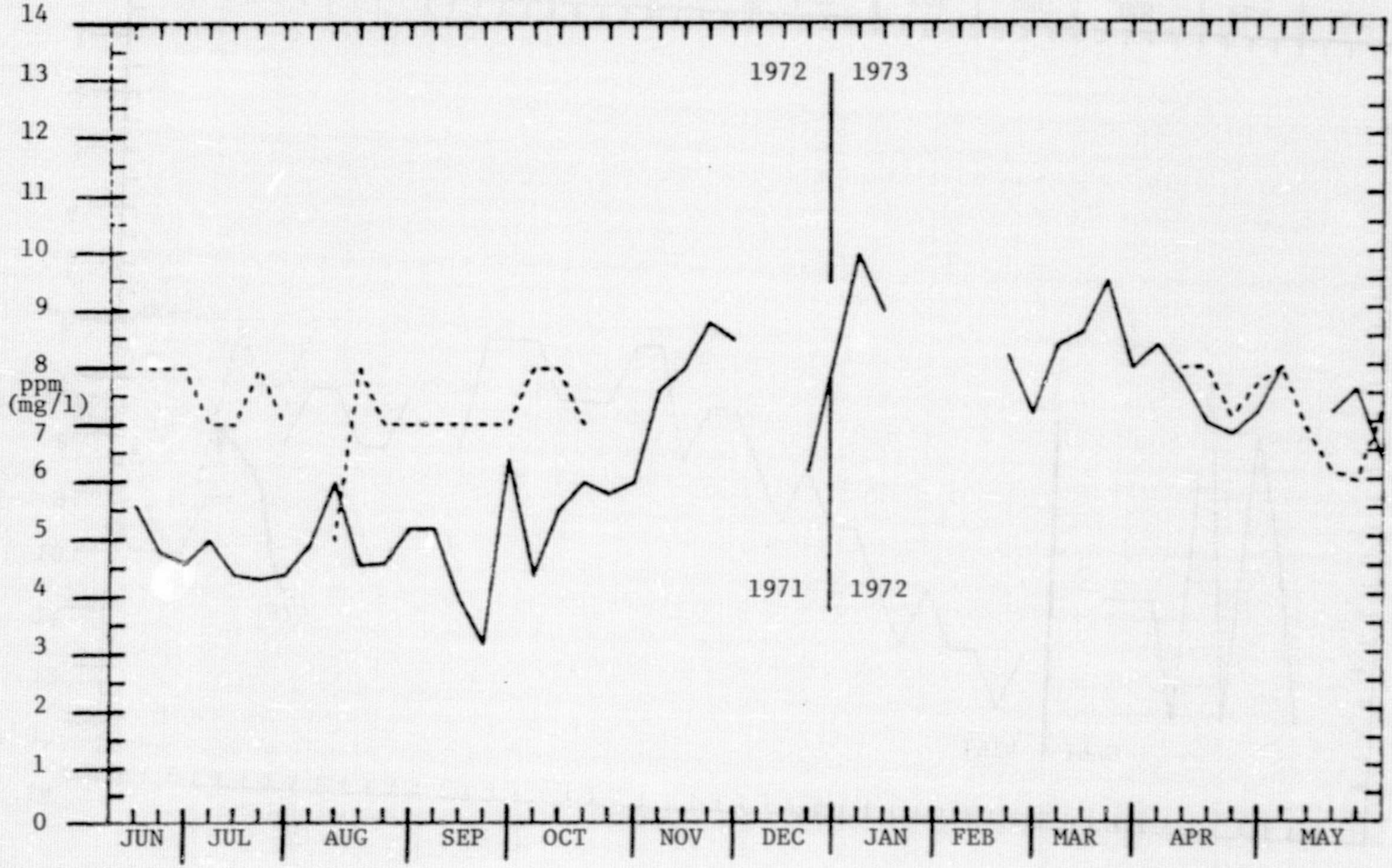

FIGURE 38. WEEKLY ACTUAL DISSOLVED OXYGEN IN PARTS PER MILLION OF WHEELER FROM JUNE 6, 1971 TO JUNE 15, 1973.

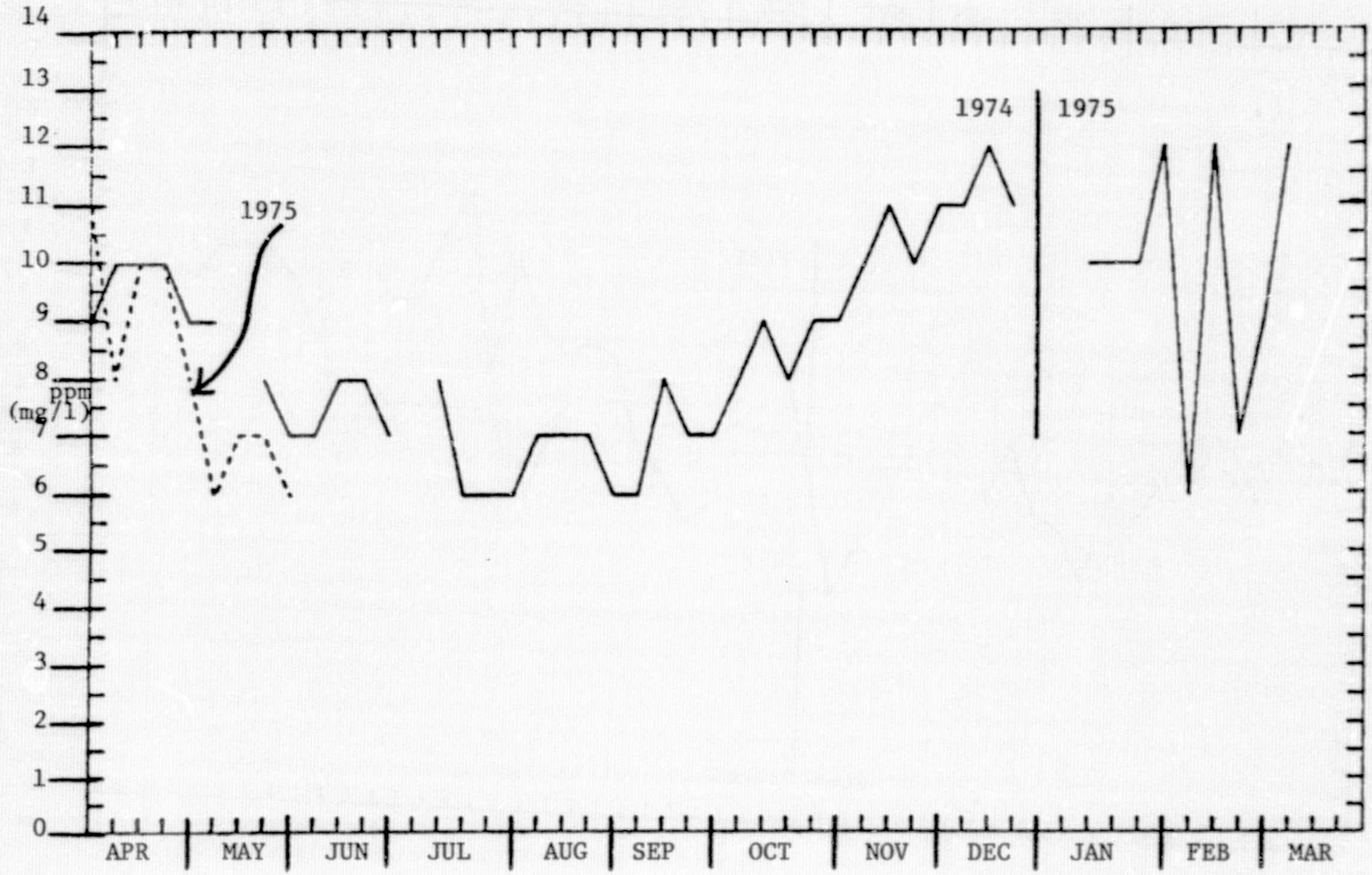

FIGURE 39. WEEKLY DISSOLVED OXYGEN IN PARTS PER MILLION OF WHEELER FROM MARCH 27, 1974 TO MAY 28, 1975.

C.2

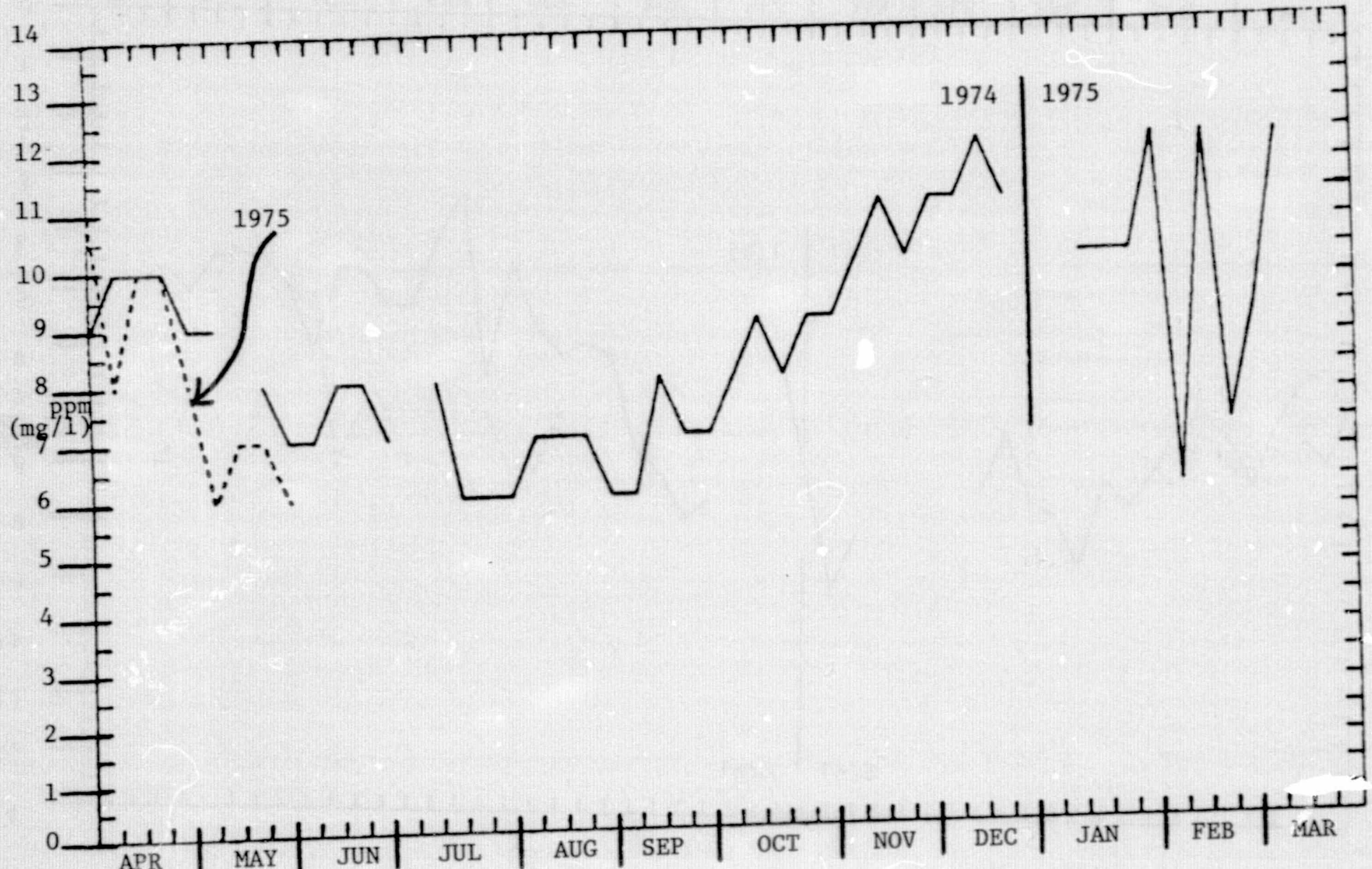

FIGURE 39. WEEKLY DISSOLVED OXYGEN IN PARTS PER MILLION OF WHEELER FROM MARCH 27, 1974 TO MAY 28, 1975.

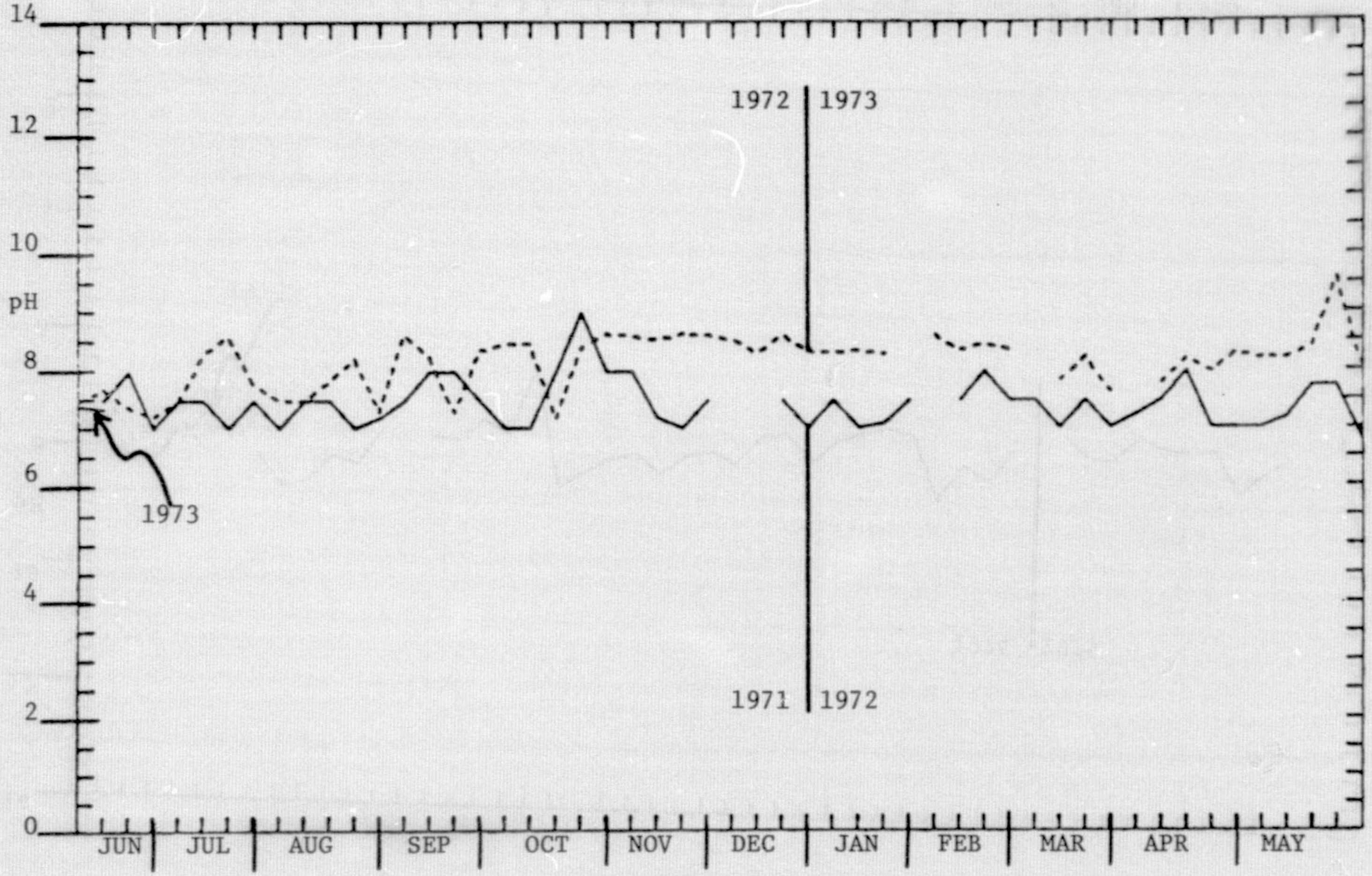

FIGURE 40. WEEKLY pH OF WHEELER FROM JUNE 6, 1971 TO JUNE 15, 1973.

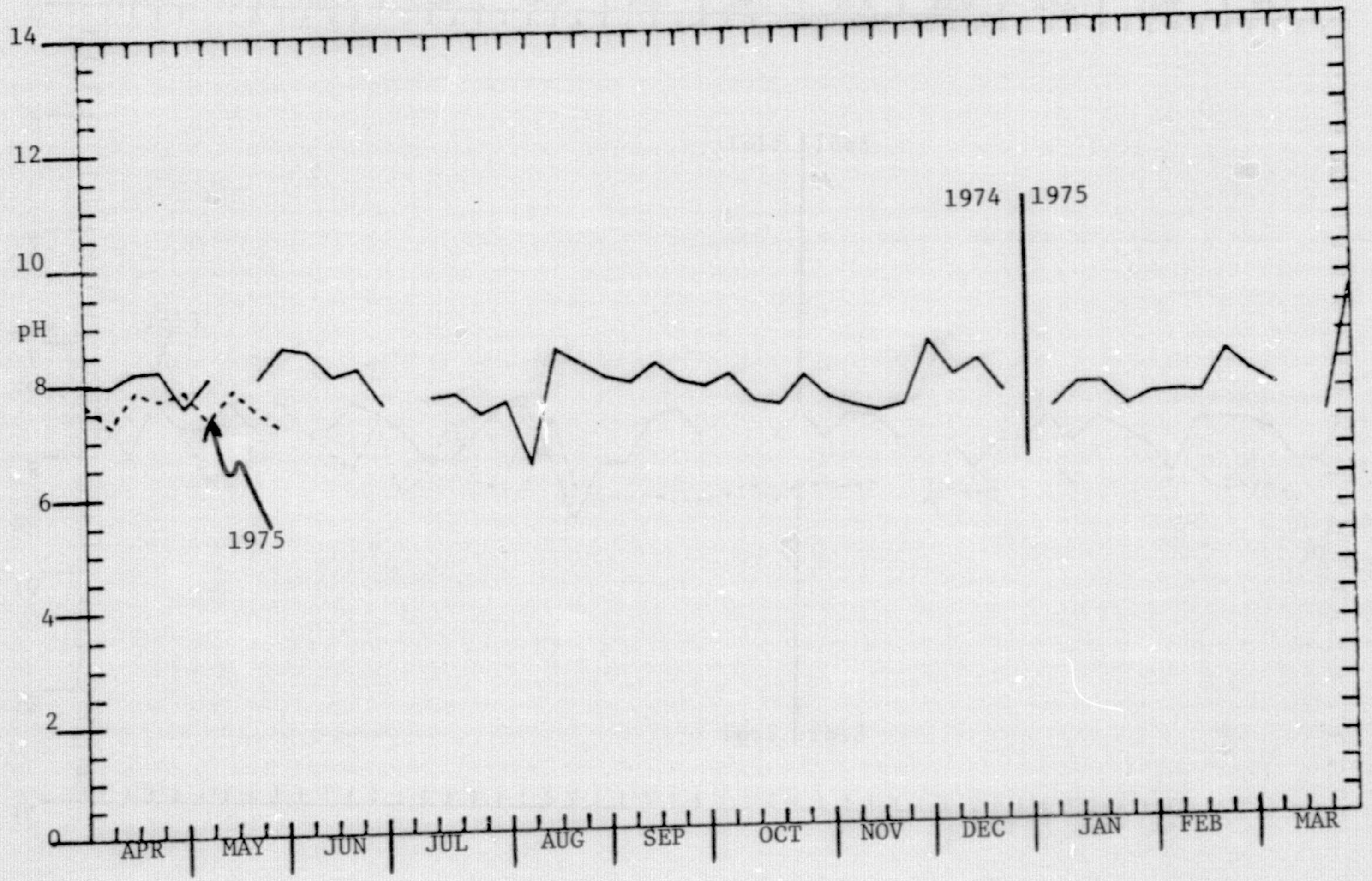

FIGURE 41. WEEKLY pH OF WHEELER FROM MARCH 27, 1974 TO MAY 28, 1975.

BROWNS FERRY

DATE	TEMP F	TEMP C	MAX DO	% DO	PPM DO	PH
710606	999.000	999.000	999.000	999.000	999.000	999.000
710906	77.000	25.000	8.110	62.000	5.000	7.500
711606	79.700	26.500	7.920	68.000	5.400	7.300
712306	80.600	27.000	7.860	53.000	4.200	7.120
713006	84.200	29.000	7.640	66.000	5.040	7.500
710707	82.400	28.000	7.750	70.000	5.400	8.000
711407	86.900	30.500	7.470	54.000	4.000	8.000
712107	83.300	28.500	7.690	52.000	4.000	7.200
712807	80.600	27.000	7.860	64.000	5.000	7.500
710408	81.860	27.700	7.780	77.000	6.000	7.500
711108	86.000	30.000	7.530	77.000	5.800	8.000
711808	83.300	28.500	7.690	68.000	5.200	7.500
712508	89.060	31.700	7.360	73.000	5.400	8.000
710109	80.600	27.000	7.860	69.000	5.400	7.200
710809	78.800	26.000	7.990	63.000	5.000	7.000
711709	78.800	26.000	7.990	53.000	4.200	7.000
712409	82.400	28.000	7.750	67.000	5.200	7.000
712909	78.080	25.600	8.050	72.000	5.800	7.000
710610	75.020	23.900	8.260	73.000	6.000	6.700
711310	71.960	22.200	8.500	59.000	5.000	6.800
712010	73.940	23.300	8.360	69.000	5.800	8.300
712710	71.600	22.000	8.530	89.000	7.600	8.000
710311	66.920	19.400	8.940	94.000	8.400	7.500
711011	57.020	13.900	10.020	90.000	9.000	7.000
711711	62.960	17.200	9.330	96.000	9.000	7.000
710712	53.420	11.900	10.480	67.000	7.000	7.000
711012	999.000	999.000	999.000	999.000	999.000	999.000
711412	999.000	999.000	999.000	999.000	999.000	999.000
712412	50.000	10.000	10.920	58.000	6.280	7.000
713112	52.340	11.300	10.620	91.000	9.640	6.500
720401	51.980	11.100	10.650	70.000	7.500	7.000
721201	51.980	11.100	10.650	68.000	7.200	6.800
721801	44.060	6.700	11.860	72.000	8.600	7.100
722401	69.800	21.000	8.680	69.000	6.000	7.500
723101	48.020	8.900	11.250	82.000	9.200	7.000
720202	999.000	999.000	999.000	999.000	999.000	999.000
720902	42.080	5.600	12.180	63.000	8.000	7.500
721402	60.080	15.600	9.660	68.000	6.600	6.500
722202	50.000	10.000	10.920	66.000	7.200	7.000
722802	51.980	11.100	10.650	68.000	7.200	7.500
720603	50.000	10.000	10.920	68.000	7.400	8.000
721303	66.020	18.900	9.030	81.000	7.300	7.500
722003	57.920	14.400	9.910	89.000	8.800	8.000
722803	66.200	19.000	9.010	77.000	6.900	7.000
720304	68.000	20.000	8.840	95.000	8.400	8.000
721304	57.200	14.000	9.980	72.000	7.200	7.500
721704	66.200	19.000	9.010	67.000	6.000	7.000
722404	67.100	19.500	8.930	73.000	6.560	7.000
720205	69.800	21.000	8.680	92.000	8.000	7.500
720805	69.800	21.000	8.680	999.000	999.000	7.500
721505	69.800	21.000	8.680	91.000	7.900	8.000
722405	68.900	20.500	8.760	88.000	7.700	7.750
723105	73.400	23.000	8.380	94.000	7.900	7.200
720606	79.700	26.500	7.920	999.000	999.000	7.500
721306	75.200	24.000	8.250	109.000	9.000	8.400
722006	79.700	26.500	7.920	101.000	8.000	8.100
722706	79.880	26.600	7.920	101.000	8.000	7.600
720607	80.960	27.200	7.840	102.000	8.000	8.000
721207	82.040	27.800	7.780	999.000	999.000	8.000
721807	82.940	28.300	7.720	117.000	9.000	8.100
722507	84.920	29.400	7.590	119.000	9.000	8.300
720108	81.320	27.400	7.820	102.000	8.000	7.810
720808	82.940	28.300	7.720	104.000	8.000	8.600
721508	80.960	27.200	7.840	115.000	9.000	7.500
722208	84.020	28.900	7.650	131.000	10.000	7.400
722908	82.940	28.300	7.720	104.000	8.000	7.750
720509	78.980	26.100	7.990	100.000	8.000	8.000
721309	78.980	26.100	7.990	113.000	9.000	8.550
722009	81.500	27.500	7.810	90.000	7.000	7.250
722709	78.980	26.100	7.990	88.000	7.000	8.620
720410	69.980	21.100	8.680	86.000	7.500	7.750
721110	69.080	20.600	8.760	103.000	9.000	8.550
722010	60.620	15.900	9.600	83.000	8.000	8.350
722510	57.920	14.400	9.910	999.000	999.000	8.150
720311	63.860	17.700	9.240	999.000	999.000	8.250
721011	59.000	15.000	9.760	999.000	999.000	8.500
721511	53.600	12.000	10.430	999.000	999.000	8.400
722211	51.800	11.000	10.670	999.000	999.000	8.400
722911	48.380	9.100	11.160	999.000	999.000	8.650
720612	51.800	11.000	10.670	999.000	999.000	8.700
721312	51.440	10.800	10.750	999.000	999.000	8.320
722112	48.200	9.000	11.190	999.000	999.000	8.620
722912	46.994	8.330	11.360	999.000	999.000	8.330
730501	48.002	8.890	11.250	999.000	999.000	8.420
731001	39.920	4.400	12.600	999.000	999.000	8.350
731901	48.200	9.000	11.190	999.000	999.000	8.580
732401	46.400	8.000	11.470	999.000	999.000	8.420
733101	43.700	6.500	11.910	999.000	999.000	8.620
730802	50.000	10.000	10.920	999.000	999.000	8.520
731602	39.200	4.000	12.700	999.000	999.000	8.220
732202	42.008	5.560	12.220	999.000	999.000	8.420
732602	999.000	999.000	999.000	999.000	999.000	999.000
730203	48.200	9.000	11.190	999.000	999.000	8.250
730903	57.200	14.000	9.980	999.000	999.000	7.900
732803	56.480	13.600	10.060	999.000	999.000	8.900
733003	999.000	999.000	999.000	999.000	999.000	999.000
730604	58.100	14.500	9.870	95.000	9.400	8.000
731304	55.760	13.200	10.150	77.000	8.200	8.200
731804	58.640	14.800	9.830	78.000	7.800	8.500
732704	62.500	16.940	9.390	85.000	8.000	8.200
730405	64.500	18.060	9.170	83.000	7.600	8.490
731105	69.500	20.830	8.710	92.000	8.000	8.300
731805	68.500	20.280	8.790	83.000	7.280	8.550
732505	999.000	999.000	999.000	999.000	999.000	999.000
730106	72.000	22.220	8.500	80.000	6.800	8.000
730806	74.500	23.610	8.300	87.000	7.200	7.700
731506	78.000	25.560	8.040	93.000	7.500	7.900

BROWNS FERRY

DATE	TEMP F	TEMP C	MAX DO	% DO	PPM DO	PH
742703	52.700	11.500	10.550	104.000	11.000	8.150
740304	61.500	16.390	9.480	95.000	9.000	8.500
741004	56.190	13.440	10.100	99.000	10.000	8.000
741704	59.110	15.060	9.750	103.000	10.000	8.[illegible]00
742404	63.900	17.330	9.310	75.000	7.000	8.000
740105	68.790	20.440	8.770	103.000	9.000	7.900
740805	65.500	18.610	9.080	99.000	9.000	8.150
741505	999.000	999.000	999.000	999.000	999.000	999.000
742205	75.000	23.890	8.260	97.000	8.000	8.000
742905	73.000	22.780	8.410	95.000	8.000	8.600
740506	78.010	25.560	8.050	99.000	8.000	8.600
741206	80.010	26.670	7.900	101.000	8.000	7.650
741906	80.010	26.670	7.900	101.000	8.000	8.350
742606	75.510	24.170	8.230	85.000	7.000	7.500
740307	999.000	999.000	999.000	999.000	999.000	999.000
741007	999.000	999.000	999.000	999.000	999.000	999.000
741707	87.010	30.560	7.460	94.000	7.000	7.750
742407	87.010	30.560	7.460	80.000	6.000	7.800
743107	85.500	29.720	7.560	93.000	7.000	7.550
740708	84.510	29.170	7.610	92.000	7.000	7.350
741408	87.010	30.560	7.460	94.000	7.000	8.300
742108	84.000	28.890	7.650	105.000	8.000	7.850
742808	86.000	30.000	7.530	93.000	7.000	7.450
740409	79.000	26.110	7.970	88.000	7.000	8.400
741109	81.000	27.220	7.840	102.000	8.000	8.000
741809	80.000	26.670	7.900	89.000	7.000	8.190
742509	999.000	999.000	999.000	999.000	999.000	8.100
740210	69.500	20.830	8.710	92.000	8.000	8.330
740910	65.800	18.780	9.040	100.000	9.000	7.100
741610	66.000	18.890	9.030	100.000	9.000	7.700
742310	62.000	16.670	9.430	106.000	10.000	7.700
743010	67.000	19.440	8.940	112.000	10.000	7.520
740611	68.000	20.000	8.840	113.000	10.000	8.000
751311	59.000	15.000	9.760	113.000	11.000	8.000
742011	999.000	999.000	999.000	999.000	999.000	999.000
742711	999.000	999.000	999.000	999.000	999.000	999.000
740612	44.500	6.940	11.790	102.000	12.000	8.200
741112	41.500	5.280	12.280	65.000	8.000	8.000
741812	40.200	4.560	12.510	96.000	12.000	7.600
742412	999.000	999.000	999.000	999.000	999.000	999.000
743112	48.000	8.890	11.220	999.000	999.000	7.500
750801	45.500	7.500	11.610	86.000	10.000	7.700
751501	42.000	5.560	12.180	90.000	11.000	7.700
752401	43.700	6.500	11.910	92.000	11.000	7.000
752901	49.800	9.890	10.950	110.000	12.000	7.490
750702	46.200	7.890	11.500	43.000	5.000	7.750
751202	47.200	8.440	11.360	114.000	13.000	8.050
751902	51.300	10.720	10.750	93.000	10.000	8.000
752502	48.000	8.890	11.220	98.000	11.000	7.700
750503	47.500	8.610	11.300	106.000	12.000	7.850
751203	999.000	999.000	999.000	999.000	999.000	999.000
751903	999.000	999.000	999.000	999.000	999.000	999.000
752603	53.000	11.670	10.510	86.000	9.000	9.400
750204	55.500	13.060	10.180	108.000	11.000	7.400
750904	56.000	13.330	13.130	79.000	8.000	7.280
751604	56.500	13.610	10.060	99.000	10.000	7.800
752304	62.000	16.670	9.430	106.000	10.000	7.800
753004	999.000	999.000	999.000	999.000	999.000	999.000
750705	69.500	20.830	8.710	92.000	8.000	7.650
751405	70.000	21.110	8.670	81.000	7.000	7.800
752405	78.000	25.560	8.040	100.000	8.000	7.600
752805	76.500	24.720	8.150	98.000	8.000	7.600

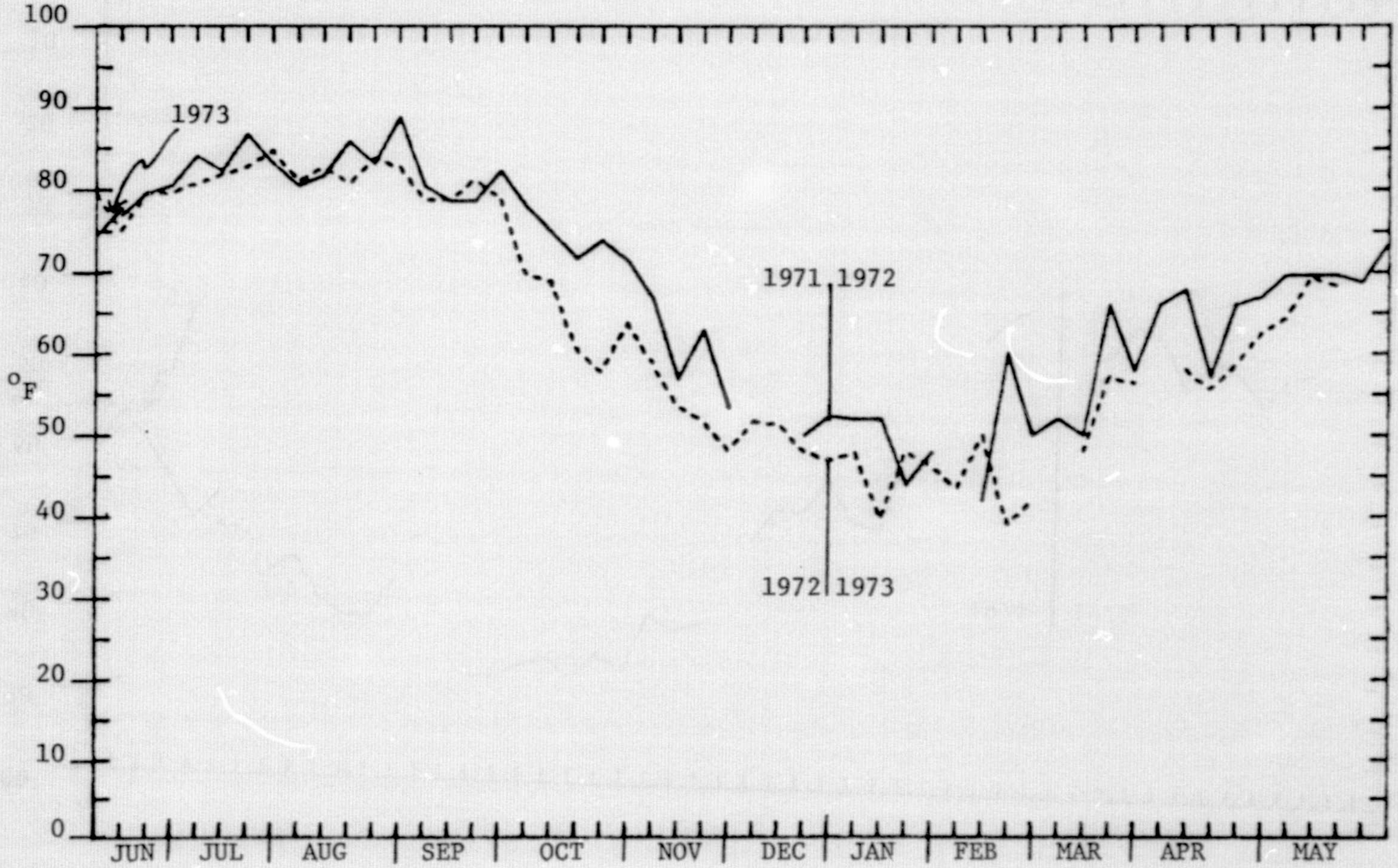

FIGURE 42. WEEKLY TEMPERATURE (°F) OF BROWNS FERRY FROM JUNE 6, 1971 TO JUNE 15, 1973.

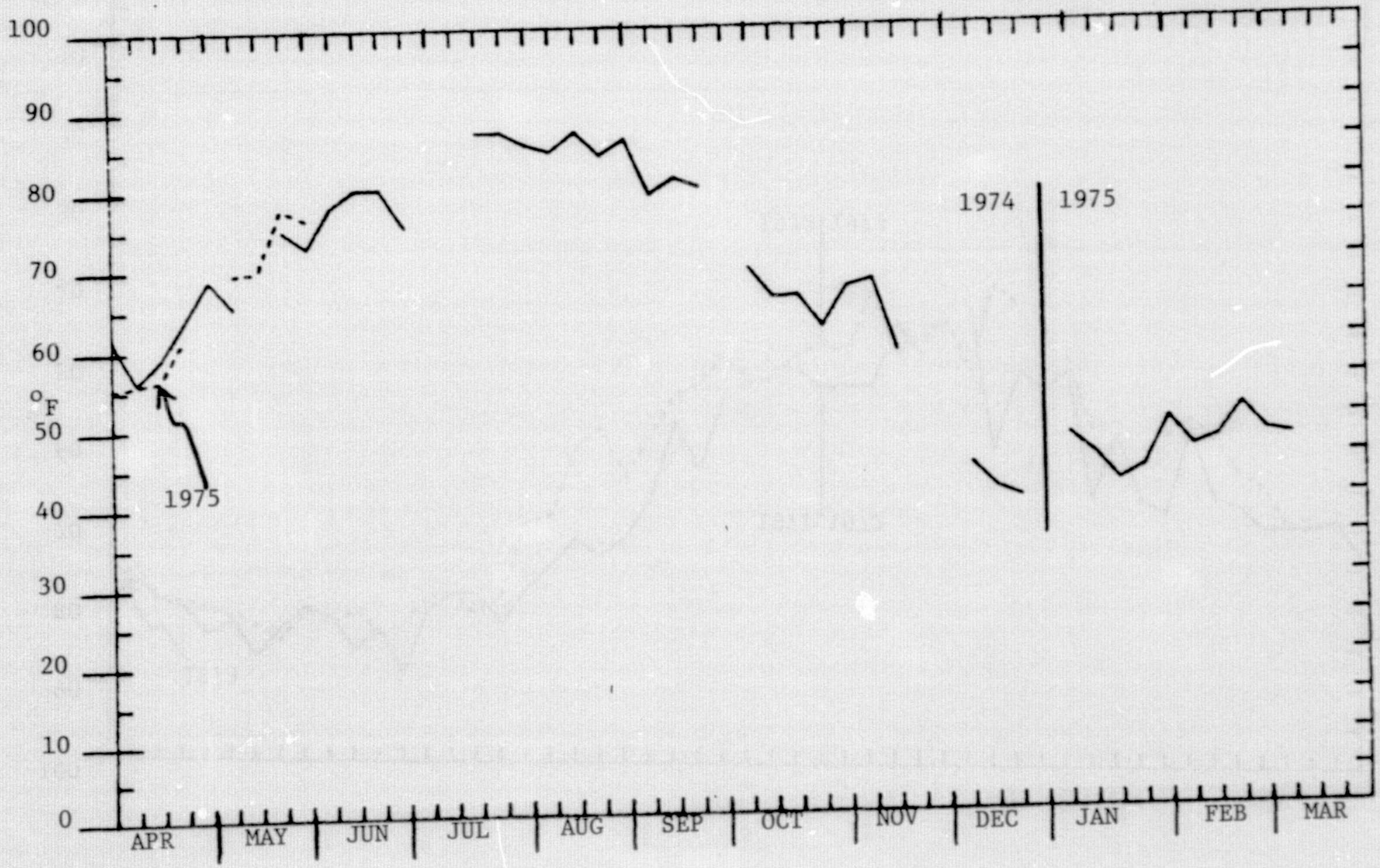

FIGURE 43. WEEKLY TEMPERATURE (°F) OF BROWNS FERRY FROM MARCH 27, 1974 TO MAY 28, 1975.

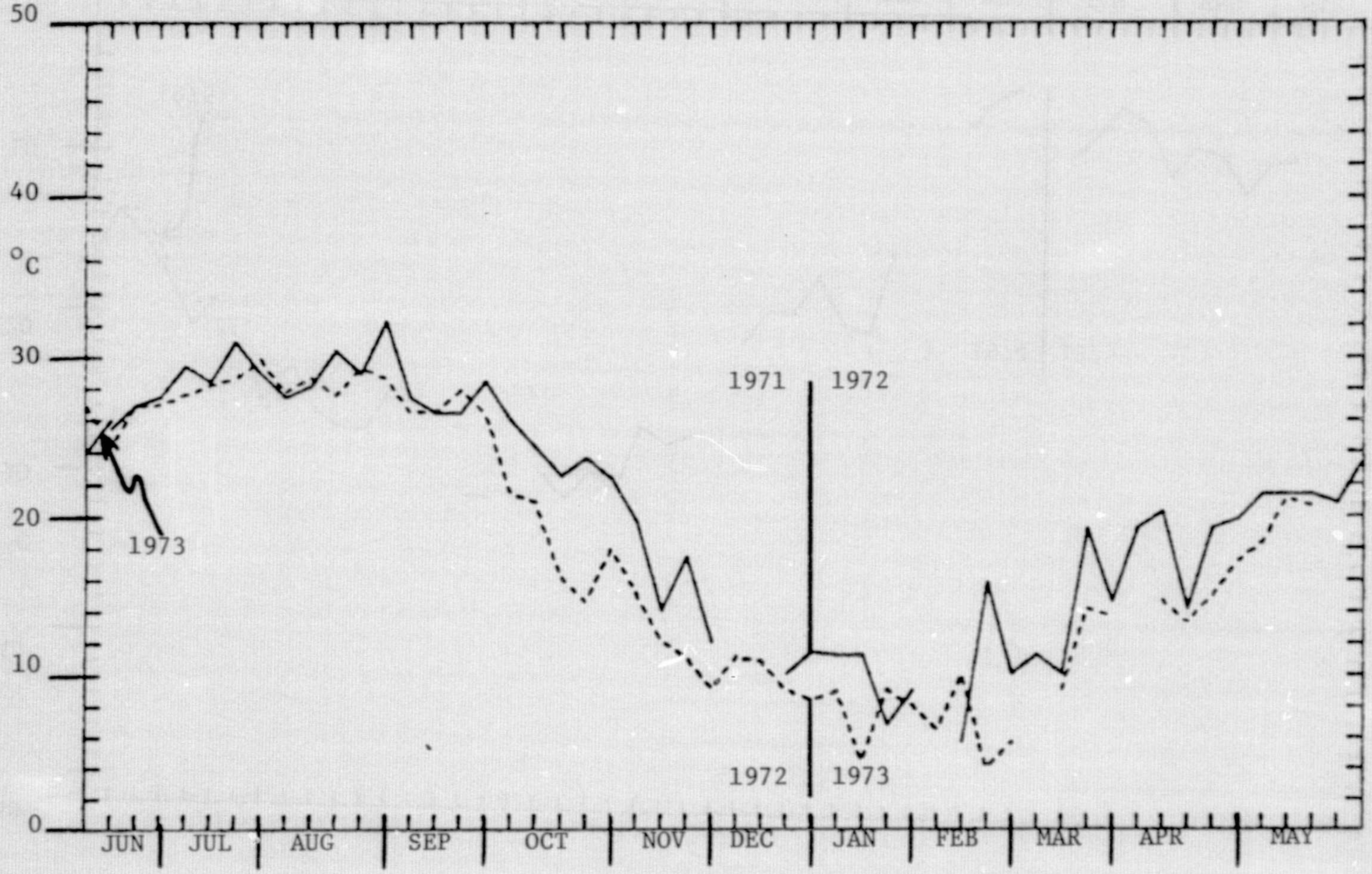

FIGURE 44. WEEKLY TEMPERATURE (°C) OF BROWNS FERRY FROM JUNE 6, 1971 TO JUNE 15, 1973.

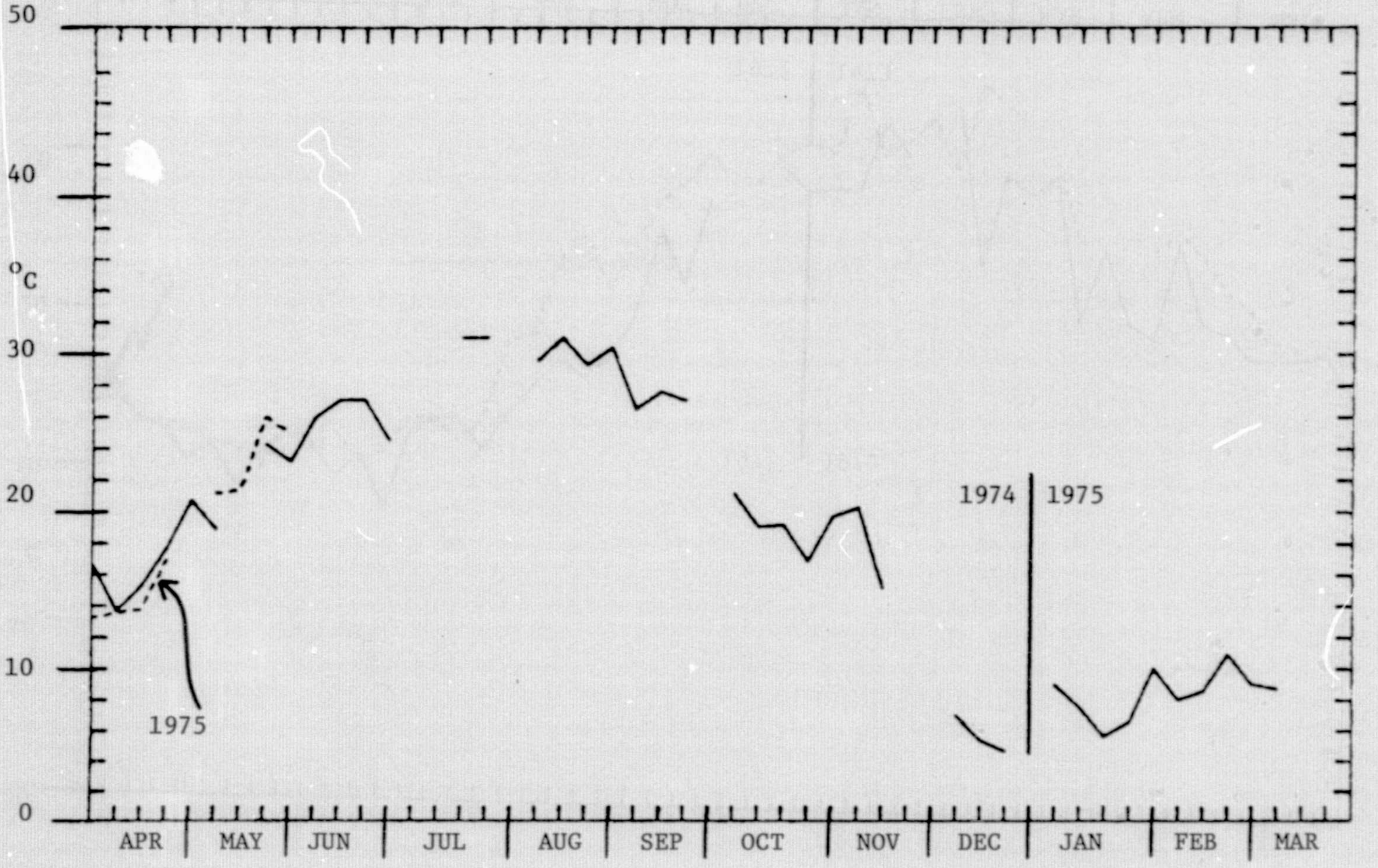

FIGURE 45. WEEKLY TEMPERATURE (°C) OF BROWNS FERRY FROM MARCH 23, 1974 TO MAY 28, 1975.

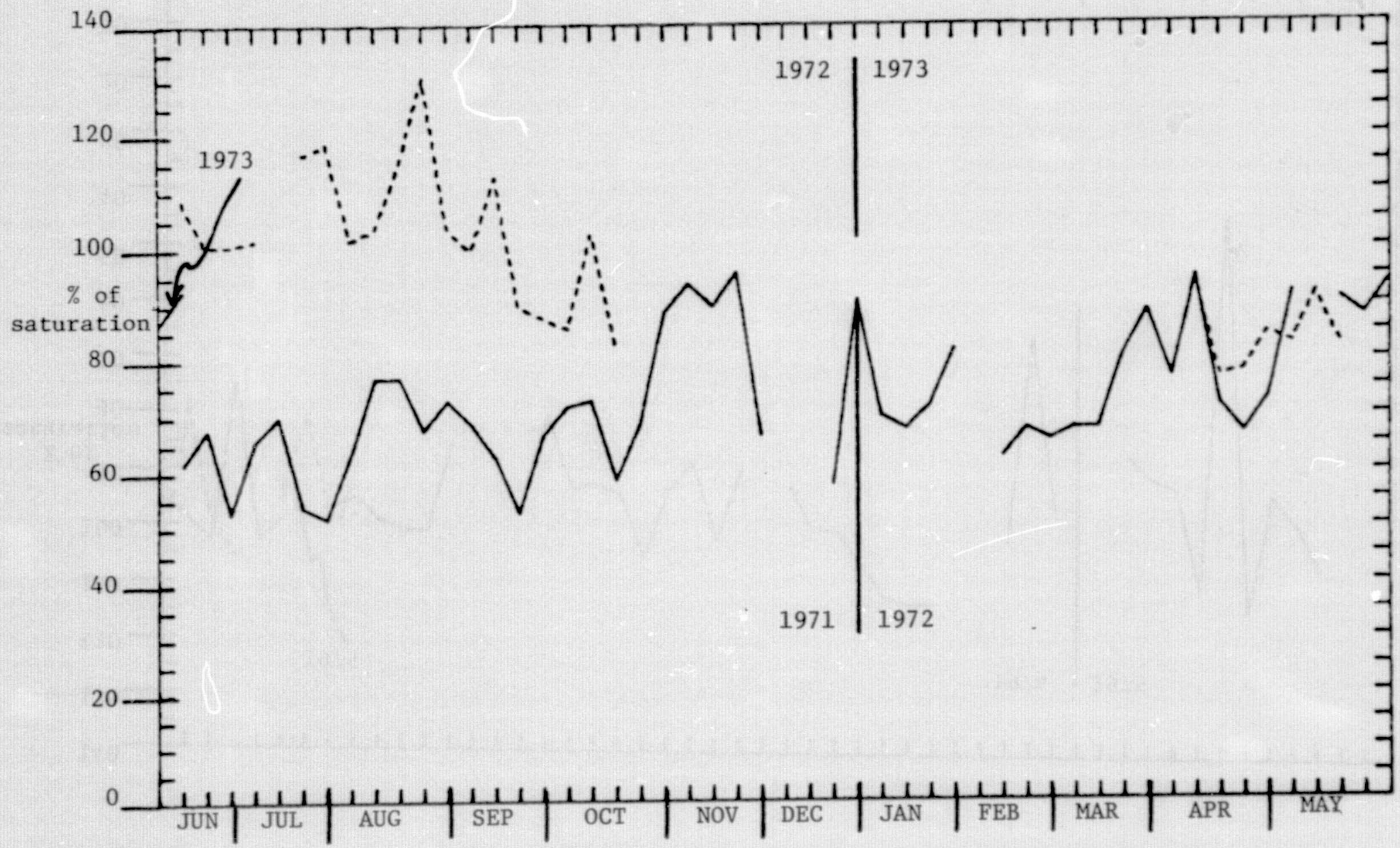

FIGURE 46. WEEKLY OXYGEN PERCENT OF SATURATION FOR WATER TEMPERATURE OF BROWNS FERRY FROM JUNE 6, 1971 TO JUNE 15, 1973.

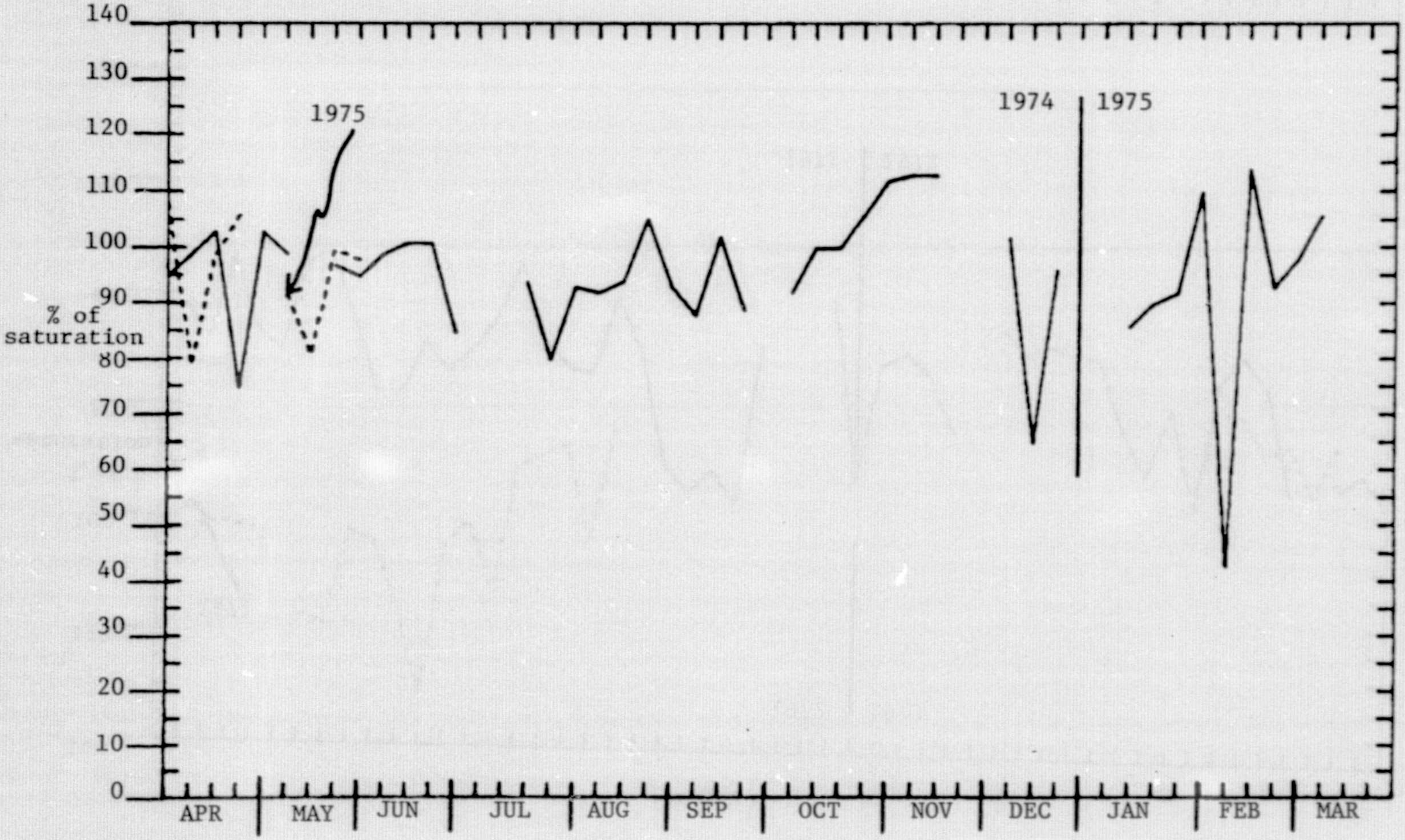

FIGURE 47. WEEKLY DISSOLVED OXYGEN (IN PERCENT OF SATURATION) OF BROWNS FERRY FOR MARCH 27, 1974 TO MAY 28, 1975.

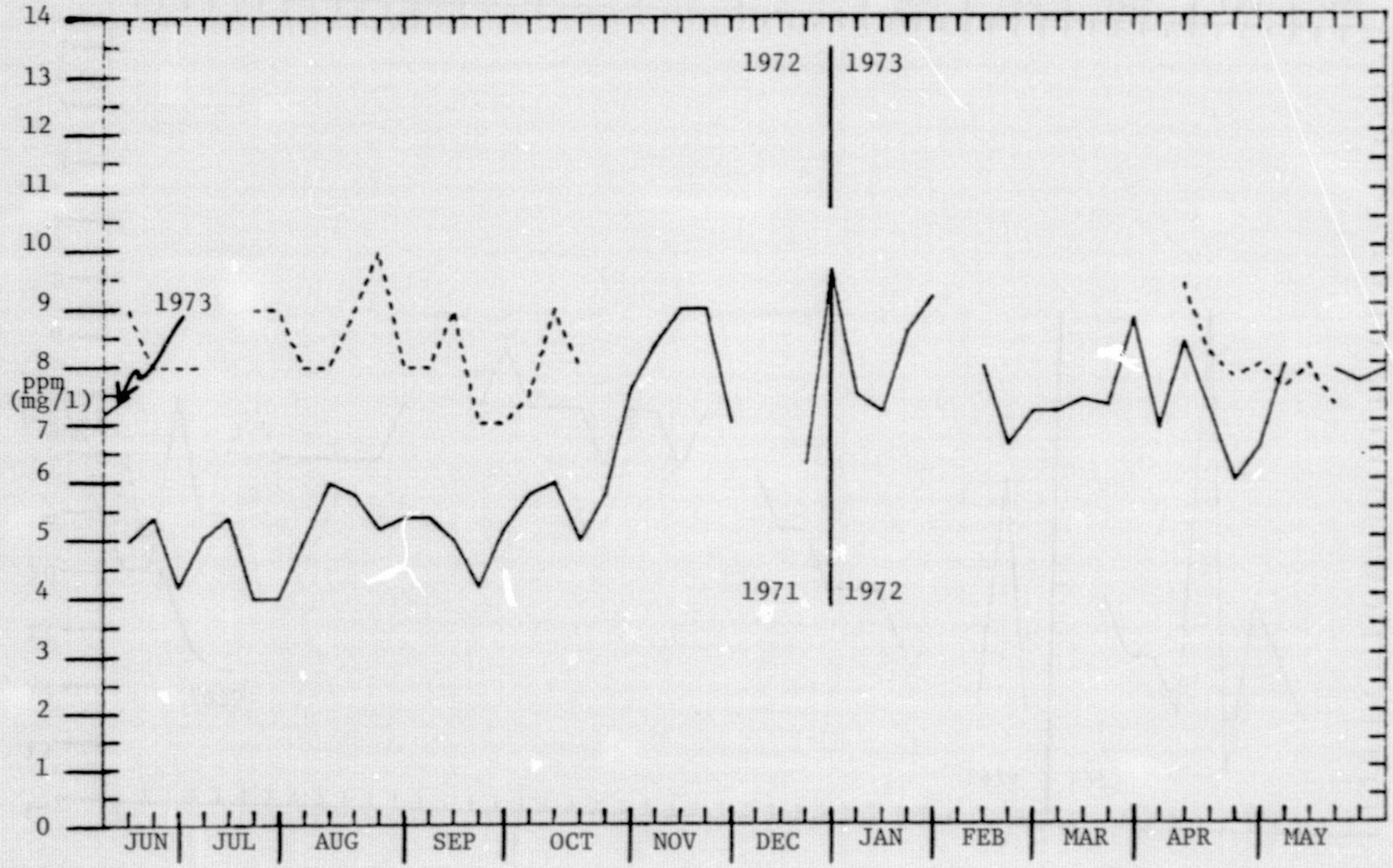

FIGURE 48. WEEKLY ACTUAL DISSOLVED OXYGEN IN PARTS PER MILLION OF BROWNS FERRY FROM JUNE 6, 1971 TO JUNE 15, 1973.

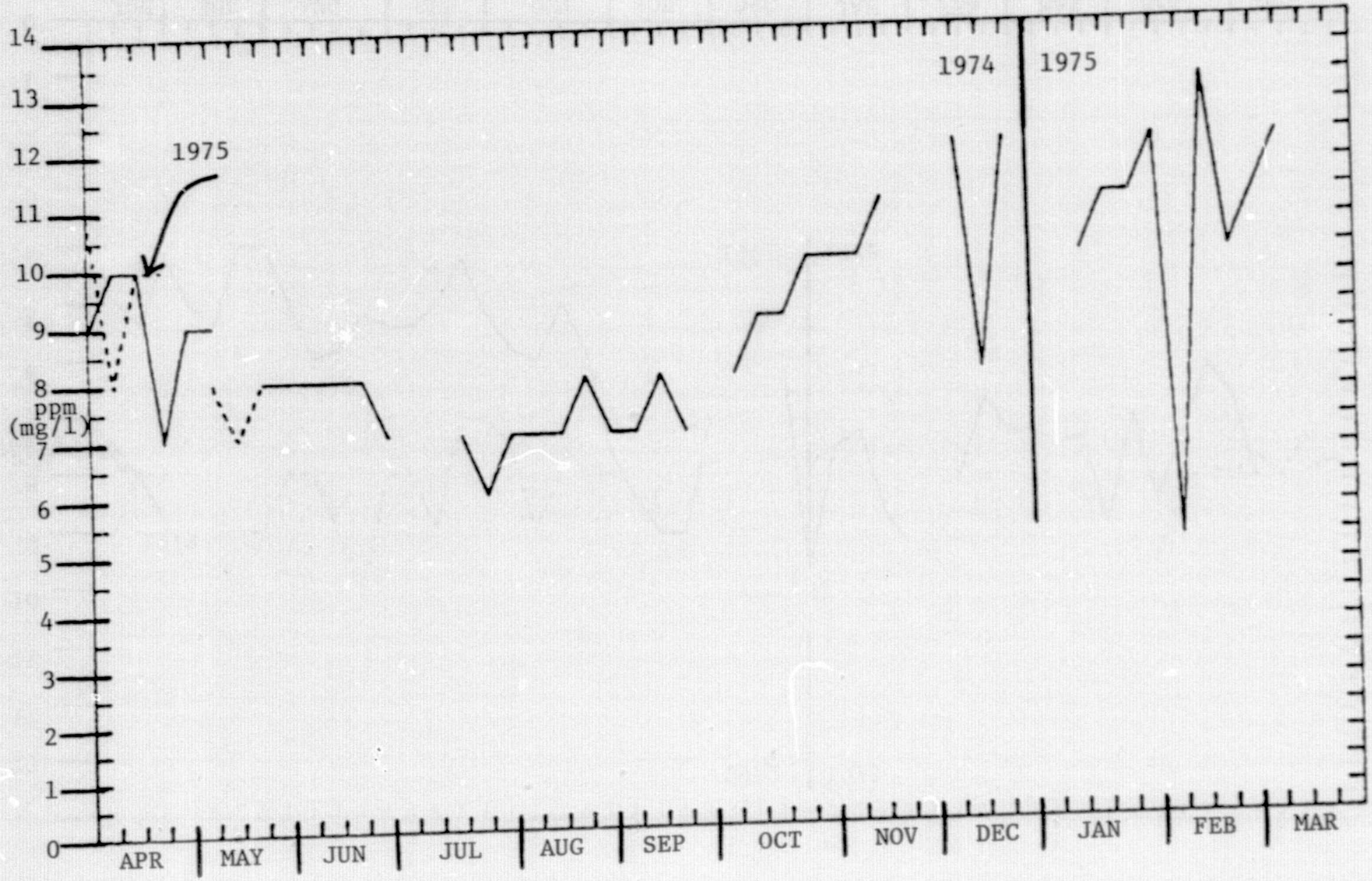

FIGURE 49. WEEKLY DISSOLVED OXYGEN IN PARTS PER MILLION OF BROWNS FERRY FROM MARCH 27, 1974 TO MAY 28, 1975.

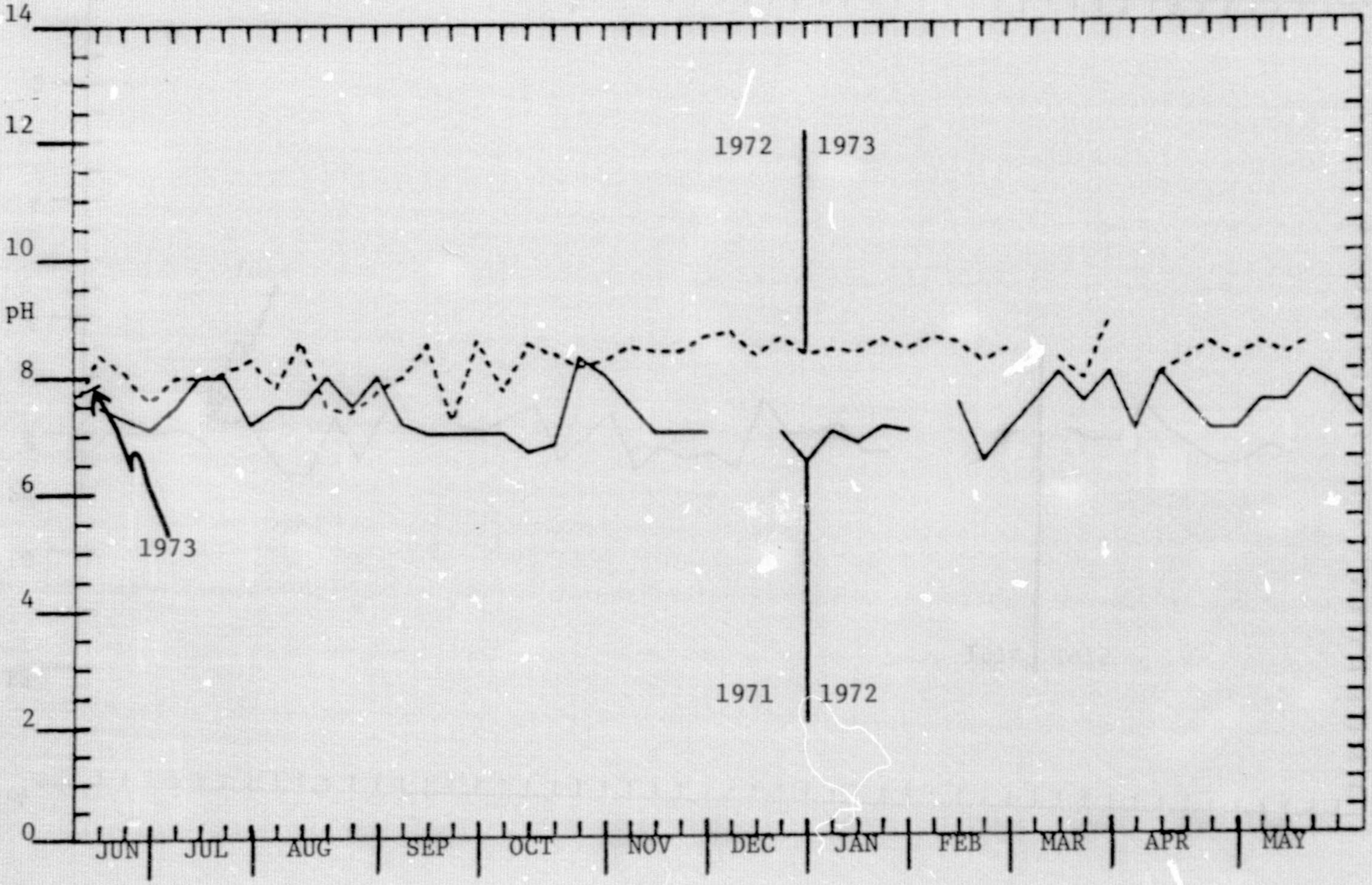

FIGURE 50. WEEKLY pH OF BROWNS FERRY FROM JUNE 6, 1971 TO JUNE 15, 1973.

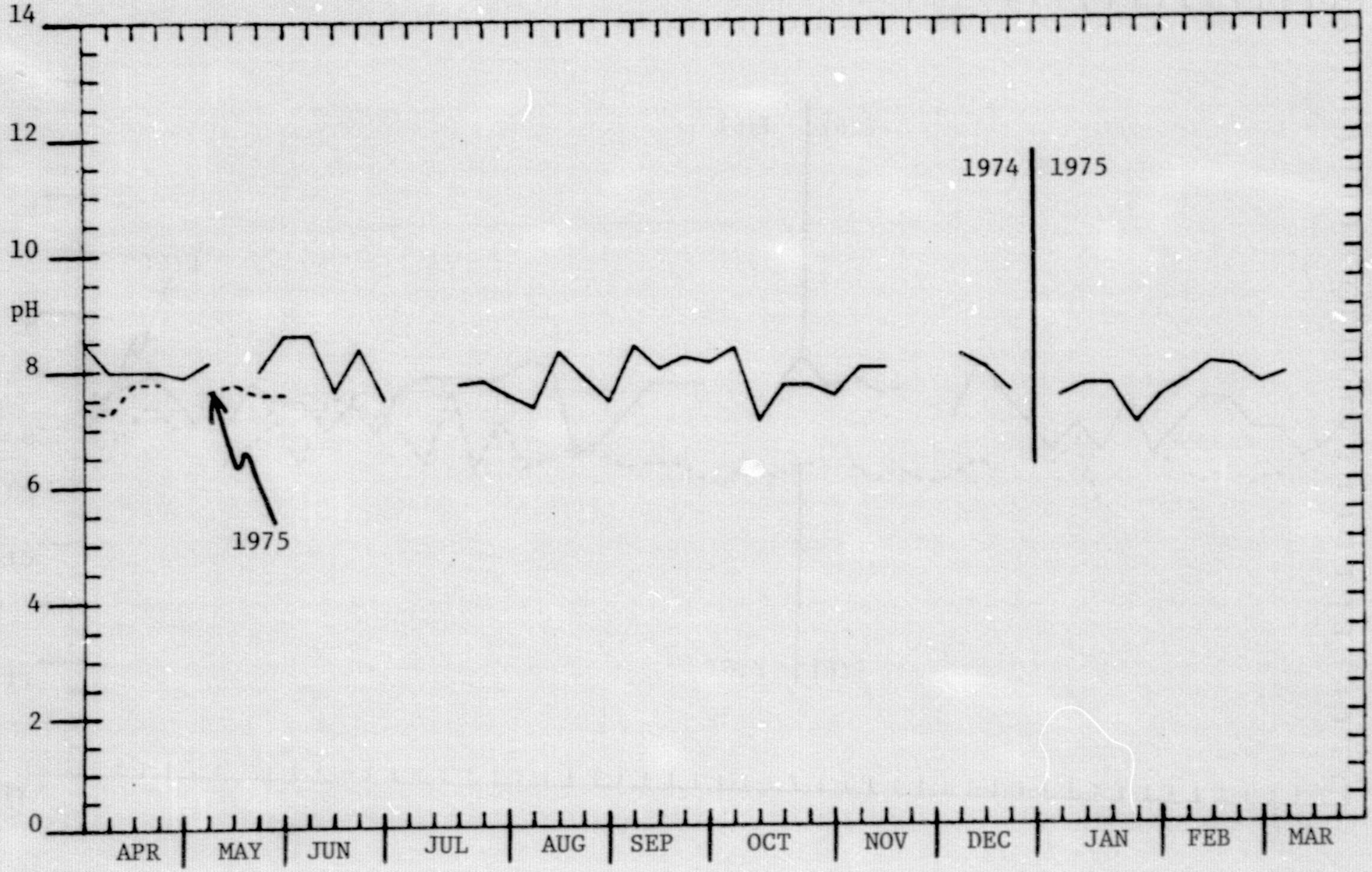

FIGURE 51. WEEKLY pH OF BROWNS FERRY FROM MARCH 27, 1974 TO MAY 28, 1975.

WHITAKER LAKE

DATE	ALKALINITY	BICARBONATE
710706	64.000	64.000
711406	60.000	60.000
712106	50.000	50.000
712806	60.000	60.000
710407	50.000	30.000
711207	60.000	60.000
711907	60.000	60.000
712607	60.000	60.000
710208	60.000	60.000
710908	60.000	60.000
711608	60.000	60.000
712308	64.000	64.000
713008	62.000	62.000
710609	60.000	60.000
711309	49.000	39.000
712009	60.000	60.000
712809	60.000	60.000
710110	999.000	999.000
710510	60.000	60.000
711210	64.000	64.000
712010	60.000	60.000
712710	60.000	60.000
710111	68.000	68.000
710811	60.000	60.000
711511	68.000	68.000
710612	50.000	50.000
711012	999.000	999.000
711412	64.000	64.000
712412	60.000	60.000
720101	70.000	70.000
720301	72.000	72.000
721101	60.000	60.000
721801	999.000	999.000
722301	60.000	60.000
722601	60.000	60.000
720202	60.000	60.000
720902	93.000	93.000
721602	94.000	94.000
722402	72.000	72.000
720103	90.000	90.000
720803	999.000	999.000
721703	62.000	62.000
722203	70.000	70.000
723003	70.000	70.000
720604	70.000	70.000
721304	70.000	70.000
722004	60.000	60.000
722604	70.000	70.000
720305	70.000	70.000
721005	70.000	70.000
721705	64.000	64.000
722505	64.000	64.000
722905	64.000	64.000
720806	70.000	70.000
721506	80.000	80.000
722206	80.000	80.000
722806	75.000	75.000
720407	60.000	60.000
721307	78.000	78.000
722007	69.000	67.000
722607	75.000	65.000
720308	68.000	66.000
721008	78.000	78.000
721708	70.000	70.000
722408	60.000	60.000
723108	70.000	70.000
720709	60.000	60.000
721509	80.000	80.000
721809	75.000	75.000
722509	80.000	80.000
720210	75.000	75.000
720910	80.000	80.000
721610	60.000	60.000
722310	80.000	80.000
723010	60.000	60.000
720611	80.000	80.000
721311	60.000	60.000
722011	60.000	60.000
722711	65.000	65.000
720412	80.000	80.000
721112	70.000	70.000
721712	[illegible]0.000	60.000
722612	80.000	80.000
730101	80.000	80.000
730901	80.000	80.000
731501	80.000	80.000
732201	55.000	55.000
730202	60.000	60.000
730502	60.000	60.000
731202	75.000	75.000
731902	65.000	65.000
732602	75.000	75.000
730503	80.000	80.000
731203	80.000	80.000
732303	68.000	68.000
733003	70.000	70.000
730404	75.000	75.000
731104	65.000	65.000
731604	72.000	72.000
732304	75.000	75.000
733004	70.000	70.000
730705	70.000	70.000
731405	60.000	90.000
732205	73.000	70.000
732905	70.000	70.000
730406	70.000	70.000
731106	72.000	72.000

WHITAKER LAKE

DATE	CARBONATE	HYDROXIDE
710706	.000	.080
711406	.000	.080
712106	.000	.080
712806	.000	.080
710407	20.000	.080
711207	.000	.080
711907	.000	.080
712607	.000	.080
710208	.000	.080
710908	.000	.080
711608	.000	.080
712308	.000	.080
713008	.000	.080
710609	.000	.080
711309	.000	10.000
712009	.000	.080
712809	.000	.080
710110	999.000	999.000
710510	.000	.080
711210	.000	.080
712010	.000	.080
712710	.000	.080
710111	.000	.080
710811	.000	.080
711511	.000	.080
710612	.000	.080
711012	999.000	999.080
711412	.000	.090
712412	.000	.080
720101	.000	.080
720301	.000	.080
721101	.000	.080
721801	999.000	999.080
722301	.000	.080
722601	.000	.000
720202	.000	.080
720902	.000	.080
721602	.000	.080
722402	.000	.080
720103	.000	.080
720803	999.000	999.080
721703	.000	.080
722203	.000	.080
723003	.000	.080
720604	.000	.080
721304	.000	.080
722004	.000	.080
722604	.000	.080
720305	.000	.080
721005	.000	.080
721705	.000	.080
722505	.000	.080
722905	.000	.080
720806	.000	.080
721506	.000	.080

DATE	CARBONATE	HYDROXIDE
722206	.000	.080
722806	.000	.080
720407	.000	.080
721307	.000	.080
722307	2.000	.080
722607	10.000	.080
720308	2.000	.080
721008	.000	.080
721708	.000	.080
722408	.000	.080
723108	.000	.080
720709	.000	.080
721509	.000	.080
721809	.000	.080
722509	.000	.080
720210	.000	.080
720910	.000	.080
721610	.000	.080
722310	.000	.080
723010	.000	.080
720611	.000	.080
721311	.000	.080
722011	.000	.080
722711	.000	.080
720412	.000	.080
721112	.000	.080
721712	.000	.080
722612	.000	.080
730101	.000	.080
730901	.000	.080
731501	.000	.080
732201	.000	.080
730202	.000	.080
730502	.000	.080
731202	.000	.080
731902	.000	.080
732602	.000	.080
730803	.000	.080
731203	.000	.080
732303	.000	.080
733003	.000	.080
730404	.000	.080
731104	.000	.080
731604	.000	.080
732304	.000	.080
733004	.000	.080
730705	.000	.080
731405	.000	.080
732205	.000	.080
732905	.000	.080
730406	.000	.080
731106	.000	.080

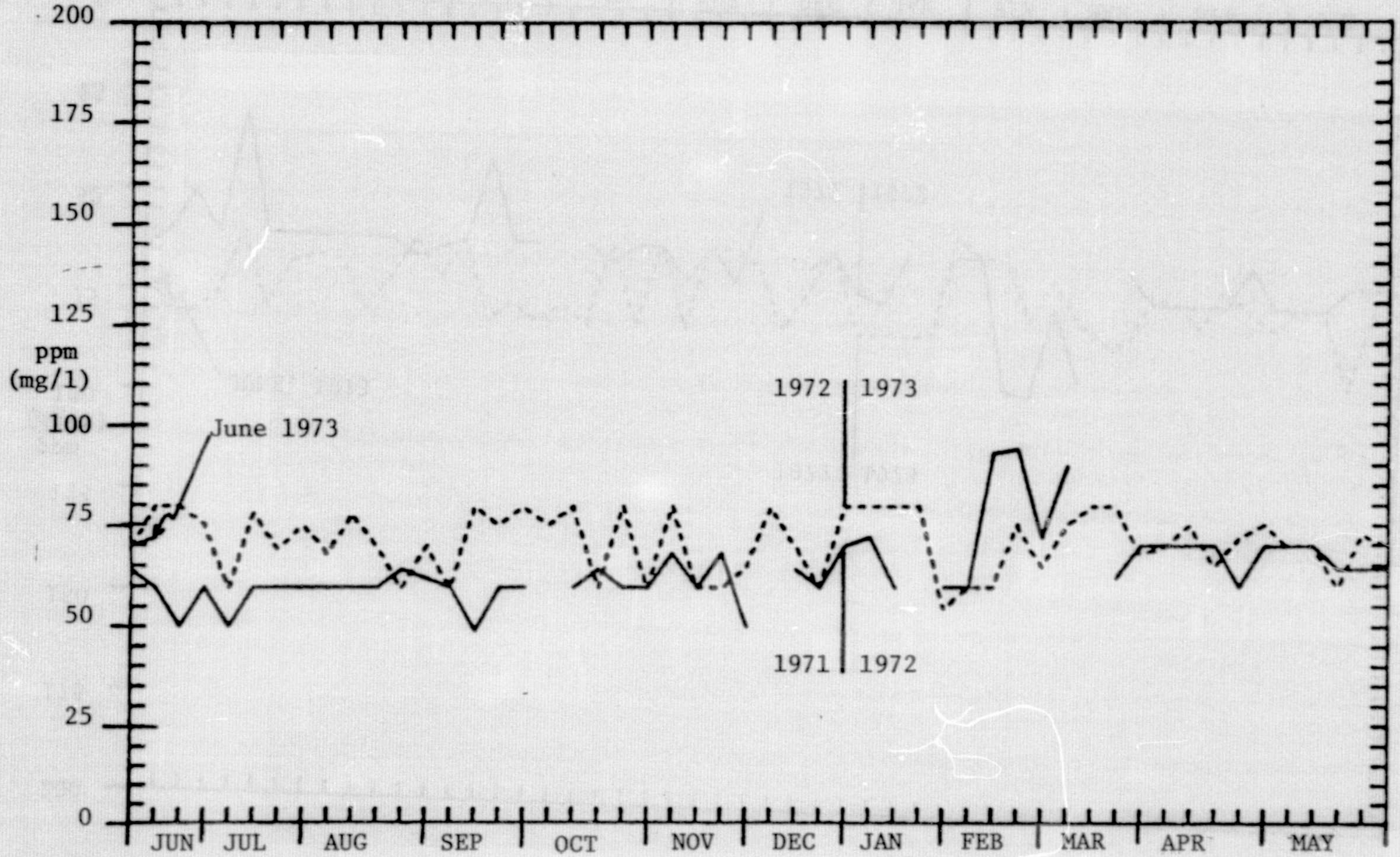

FIGURE 52. WEEKLY ALKALINITY OF WHITACKER LAKE FROM JUNE 6, 1971 TO JUNE 15, 1973.

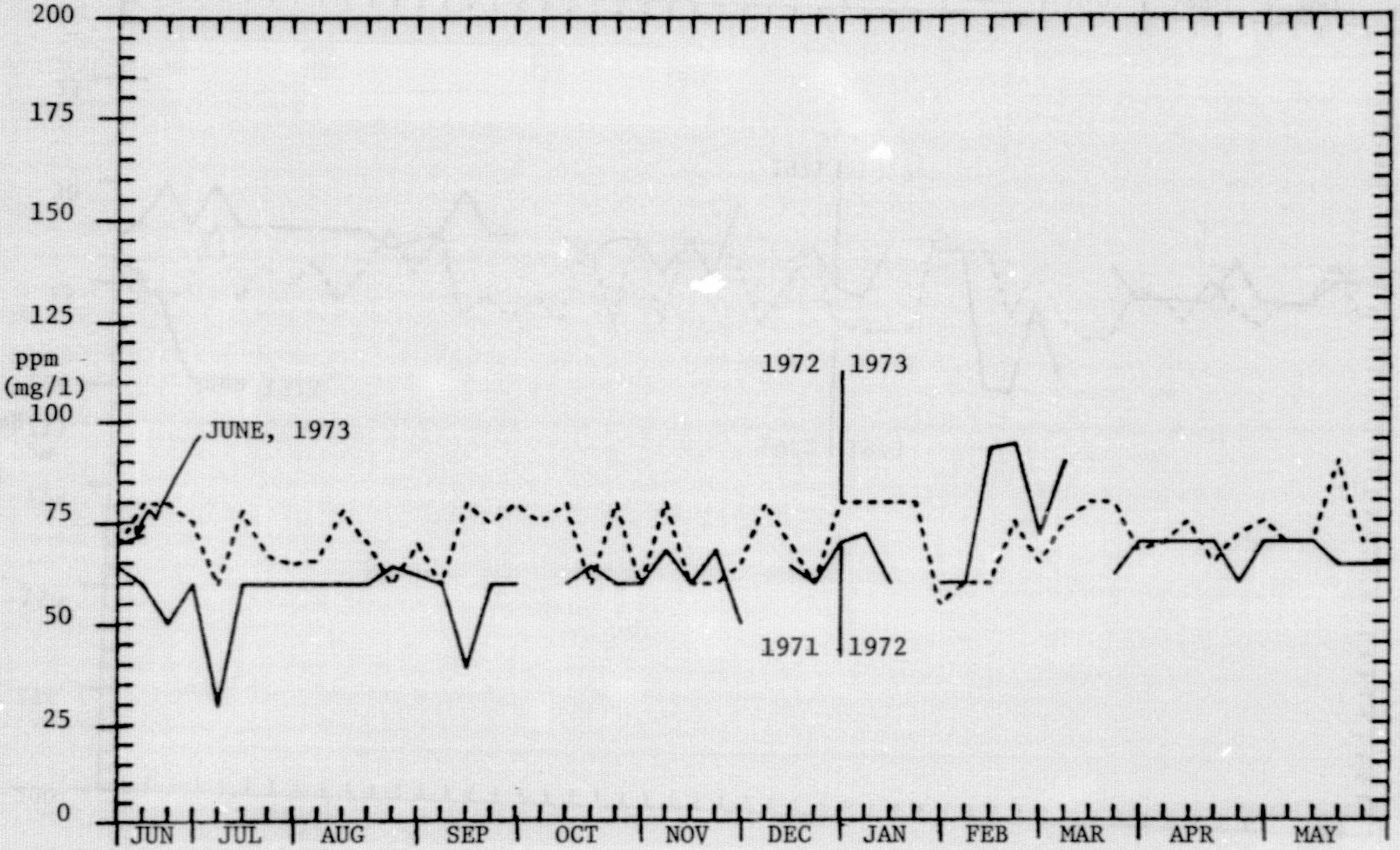

FIGURE 53. WEEKLY BICARBONATE OF WHITACKER LAKE FROM JUNE 6, 1971 TO JUNE 15, 1973.

MIRROR LAKE

DATE	ALKALINITY	BICARBONATE
710706	76.000	64.000
711406	60.000	60.000
712106	42.000	26.000
712806	50.000	50.000
710907	36.000	16.000
711207	52.000	52.000
711907	50.000	50.000
712607	60.000	60.000
710208	60.000	60.000
710908	60.000	60.000
711608	60.000	60.000
712308	70.000	54.000
713008	56.000	56.000
710609	60.000	60.000
711309	55.000	55.000
712009	60.000	60.000
712809	60.000	60.000
710110	999.000	999.000
710510	56.000	56.000
711210	60.000	60.000
712010	50.000	50.000
712710	60.000	52.000
710111	50.000	50.000
710811	58.000	58.000
711511	56.000	56.000
710612	54.000	54.000
711012	999.000	999.000
711912	57.000	57.000
712412	57.000	57.000
720101	60.000	60.000
720301	64.000	64.000
721101	54.000	54.000
721801	999.000	999.000
722301	68.000	68.000
722601	60.000	60.000
720202	60.000	60.000
720902	60.000	60.000
721602	60.000	60.000
722402	70.000	70.000
720103	70.000	70.000
720803	999.000	999.000
721703	60.000	60.000
722203	70.000	70.000
723003	60.000	60.000
720604	60.000	60.000
721304	50.000	50.000
722004	60.000	60.000
722604	60.000	60.000
720305	60.000	60.000
721005	60.000	60.000
721705	60.000	60.000
722505	60.000	60.000
722905	60.000	60.000
720806	60.000	60.000
721506	71.000	71.000

DATE	ALKALINITY	BICARBONATE
722206	70.000	70.000
722806	70.000	70.000
720407	50.000	30.000
721307	70.000	70.000
722007	71.000	71.000
722607	70.000	50.000
720308	61.000	59.000
721008	75.000	71.000
721708	60.000	60.000
722408	55.000	55.000
723108	60.000	60.000
720709	60.000	60.000
721509	70.000	60.000
721809	70.000	70.000
722509	60.000	60.000
720210	72.000	72.000
720910	80.000	80.000
721610	60.000	60.000
722310	75.000	75.000
723010	50.000	50.000
720611	72.000	72.000
721311	45.000	45.000
722011	50.000	50.000
722711	60.000	60.000
720912	60.000	60.000
721112	50.000	50.000
721712	55.000	55.000
722612	65.000	65.000
730101	80.000	80.000
730901	80.000	80.000
731501	70.000	70.000
732201	60.000	60.000
730202	70.000	70.000
730502	60.000	60.000
731202	70.000	70.000
731902	60.000	60.000
732602	70.000	70.000
730503	70.000	70.000
731203	65.000	65.000
732303	65.000	65.000
733003	70.000	70.000
730404	60.000	60.000
731104	70.000	70.000
731604	60.000	60.000
732304	63.000	63.000
733004	65.000	65.000
730705	60.000	60.000
731405	65.000	65.000
732205	70.000	70.000
732905	62.000	62.000
730406	70.000	70.000
731106	60.000	60.000

MIRROR LAKE

DATE	CARBONATE	HYDROXIDE
710706	12.000	.000
711406	.000	.000
712106	16.000	.000
712806	.000	.000
710407	20.000	.000
711207	.000	.000
711907	.000	.000
712607	.000	.000
710208	.000	.000
710908	.000	.000
711608	.000	.000
712308	16.000	.000
713008	.000	.000
710609	.000	.000
711309	.000	.000
712009	.000	.000
712809	.000	.000
710110	999.000	999.000
710510	.000	.000
711210	.000	.000
712010	.000	.000
712710	.000	8.000
710111	.000	.000
710811	.000	.000
711511	.000	.000
710612	.000	.000
711012	999.000	999.000
711412	.000	.000
712412	.000	.000
720101	.000	.000
720301	.000	.000
721101	.000	.000
721801	999.000	999.000
722301	.000	.000
722601	.000	.000
720202	.000	.000
720902	.000	.000
721602	.000	.000
722402	.000	.000
720103	.000	.000
720803	999.000	999.000
721703	.000	.000
722203	.000	.000
723003	.000	.000
720604	.000	.000
721304	.000	.000
722004	.000	.000
722604	.000	.000
720305	.000	.000
721005	.000	.000
721705	.000	.000
722505	.000	.000
722905	.000	.000
720806	.000	.000
721506	.000	.000

DATE	CARBONATE	HYDROXIDE
722206	.000	.000
722806	.000	.000
720407	20.000	.000
721307	.000	.000
722307	.000	.000
722607	20.000	.000
720308	2.000	.000
721008	4.000	.000
721708	.000	.000
722408	.000	.000
723108	.000	.000
720909	.000	.000
721509	10.000	.000
721809	.000	.000
722509	.000	.000
720210	.000	.000
720910	.000	.000
721610	.000	.000
722310	.000	.000
723010	.000	.000
720611	.000	.000
721311	.000	.000
722011	.000	.000
722711	.000	.000
720412	.000	.000
721112	.000	.000
721712	.000	.000
722612	.000	.000
730101	.000	.000
730901	.000	.000
731501	.000	.000
732201	.000	.000
730202	.000	.000
730502	.000	.000
731202	.000	.000
731902	.000	.000
732602	.000	.000
730503	.000	.000
731203	.000	.000
732303	.000	.000
733003	.000	.000
730404	.000	.000
731104	.000	.000
731604	.000	.000
732304	.000	.000
733004	.000	.000
730705	.000	.000
731405	.000	.000
732205	.000	.000
732905	.000	.000
730406	.000	.000
731106	.000	.000

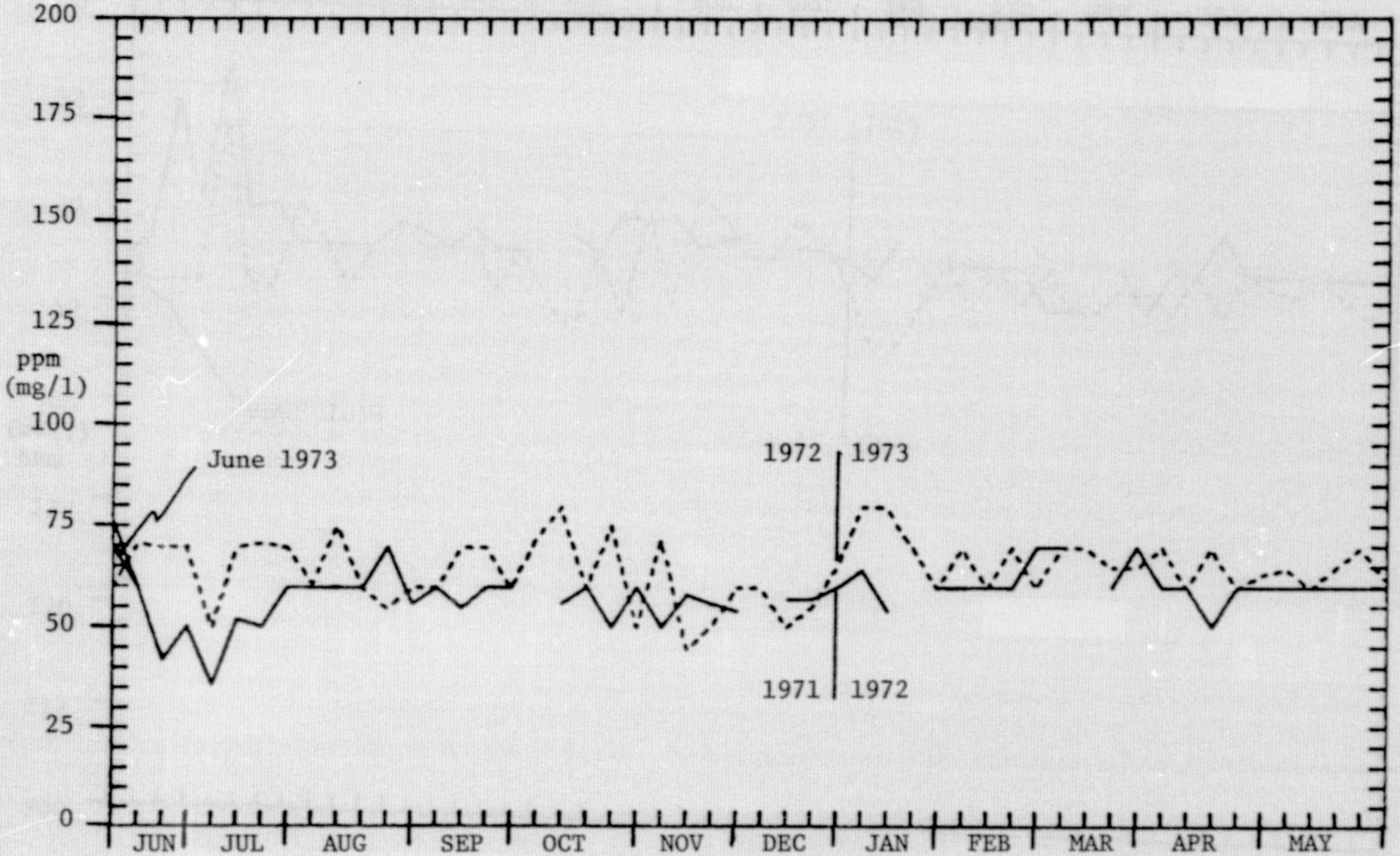

FIGURE 54. WEEKLY ALKALINITY OF MIRROR LAKE FROM JUNE 6, 1971 TO JUNE 15, 1973.

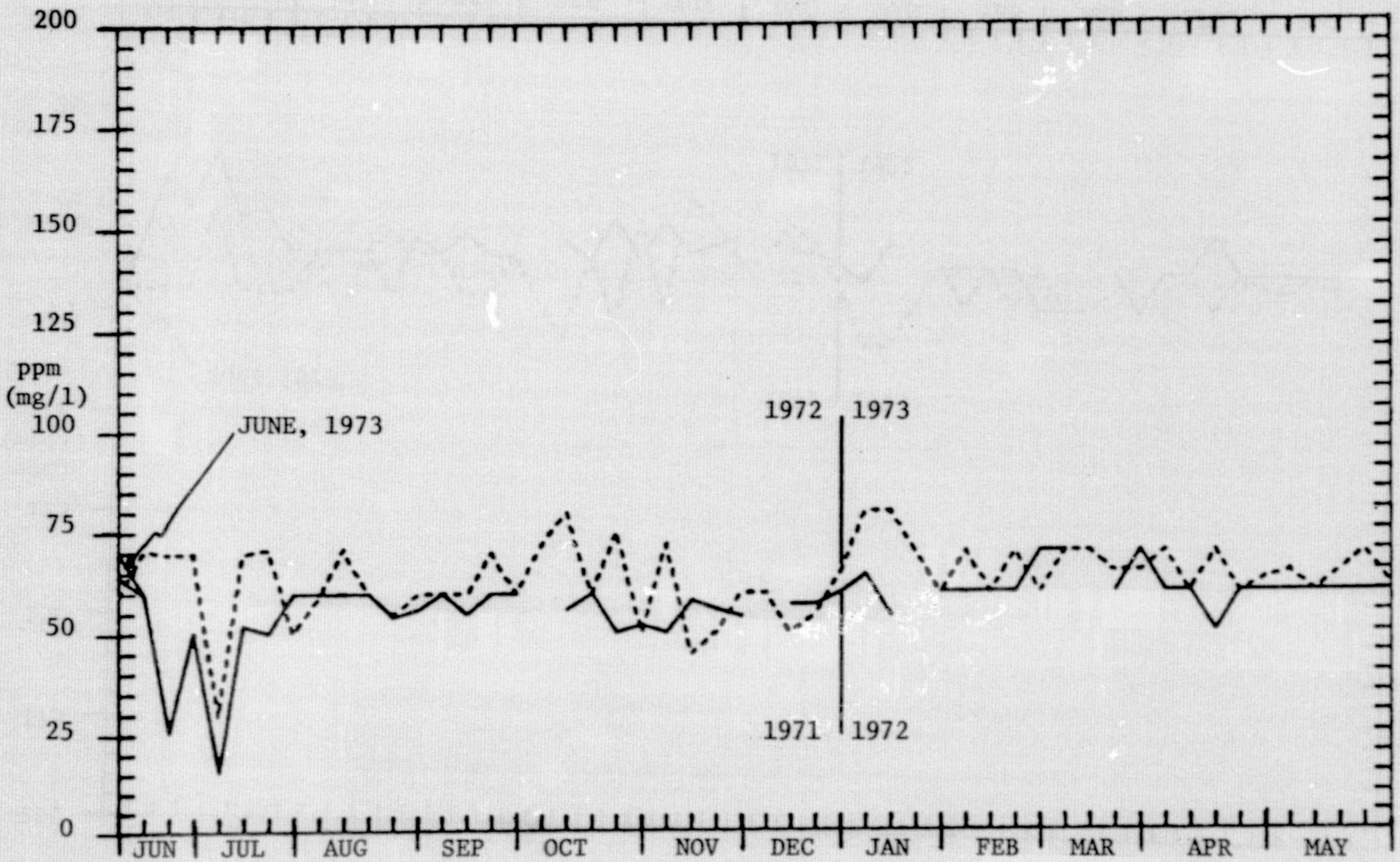

FIGURE 55. WEEKLY BICARBONATE OF MIRROR LAKE FROM JUNE 6, 1971 TO JUNE 15, 1973

WHITESBURG BOAT DOCK

DATE	ALKALINITY	BICARBONATE
710606	999.000	999.000
711106	50.000	50.000
711806	56.000	56.000
712506	60.000	60.000
710207	60.000	60.000
710907	60.000	60.000
711607	60.000	60.000
712307	60.000	60.000
713007	60.000	60.000
710608	60.000	60.000
711308	60.000	60.000
712008	60.000	60.000
712708	58.000	58.000
710209	52.000	52.000
711109	58.000	58.000
711709	60.000	60.000
712409	53.000	53.000
710110	44.000	44.000
710810	55.000	55.000
711510	60.000	60.000
712210	60.000	60.000
712910	62.000	62.000
710311	999.000	999.000
710811	60.000	60.000
711211	68.000	68.000
710612	53.000	53.000
711012	999.000	999.000
711412	60.000	60.000
712412	59.000	59.000
720101	70.000	70.000
720301	60.000	60.000
721101	64.000	64.000
721801	999.000	999.000
722301	999.000	999.000
722601	60.000	60.000
720202	60.000	60.000
720902	62.000	62.000
721602	60.000	60.000
722402	68.000	68.000
720103	60.000	60.000
720803	999.000	999.000
721703	63.000	63.000
722203	80.000	80.000
723003	70.000	70.000
720604	60.000	60.000
721304	70.000	70.000
722004	60.000	60.000
722604	70.000	70.000
720305	60.000	60.000
721005	64.000	64.000
721705	56.000	56.000
722505	58.000	58.000
722905	58.000	58.000
720806	64.000	64.000
721506	75.000	75.000

DATE	ALKALINITY	BICARBONATE
722206	70.000	70.000
722806	72.000	72.000
720407	60.000	60.000
721307	63.000	63.000
722007	74.000	74.000
722607	80.000	80.000
720308	71.000	71.000
721008	68.000	68.000
721708	65.000	65.000
722408	45.000	45.000
723108	60.000	60.000
720709	50.000	50.000
721509	72.000	72.000
721809	70.000	70.000
722509	60.000	60.000
720210	80.000	80.000
720910	80.000	80.000
721610	60.000	60.000
722310	80.000	80.000
723010	55.000	55.000
720611	80.000	80.000
721311	50.000	50.000
722011	30.000	30.000
722711	65.000	65.000
720412	70.000	70.000
721112	60.000	60.000
721712	40.000	40.000
722612	78.000	78.000
730101	80.000	80.000
730901	75.000	75.000
731501	80.000	80.000
732201	50.000	50.000
730202	40.000	40.000
730502	60.000	60.000
731202	72.000	72.000
731902	55.000	55.000
732602	70.000	70.000
730503	70.000	70.000
731203	999.000	999.000
732303	60.000	60.000
733003	60.000	60.000
730404	69.000	69.000
731104	60.000	60.000
731604	70.000	70.000
732304	60.000	60.000
733004	70.000	70.000
730705	63.000	63.000
731405	999.000	999.000
732205	70.000	70.000
732905	55.000	55.000
730406	55.000	55.000
731106	55.000	55.000

WHITESBURG BOAT DOCK

DATE	ALKALINITY	BICARBONATE
742603	999.000	999.000
740204	65.000	65.000
740904	999.000	999.000
741604	65.000	65.000
742304	60.000	60.000
743004	999.000	999.000
740605	65.000	65.000
741305	68.000	68.000
742005	65.000	65.000
742705	65.000	65.000
740406	70.000	70.000
741106	80.000	80.000
741806	80.000	80.000
742506	90.000	90.000
740207	110.000	110.000
740907	70.000	70.000
741607	65.000	65.000
742307	60.000	60.000
743007	65.000	65.000
740608	63.000	63.000
741308	65.000	65.000
742208	60.000	60.000
742708	55.000	55.000
740409	55.000	55.000
741009	60.000	60.000
741709	60.000	60.000
742409	65.000	65.000
740110	60.000	60.000
740810	65.000	65.000
741510	60.000	60.000
742410	65.000	65.000
743010	999.000	999.000
740511	50.000	50.000
741211	999.000	999.000
742011	60.000	60.000
742611	65.000	65.000
740712	65.000	65.000
741112	60.000	60.000
741712	60.000	60.000
742312	55.000	55.000
750201	55.000	55.000
750801	55.000	55.000
751401	55.000	55.000
752101	55.000	55.000
752801	50.000	50.000
750402	999.000	999.000
751402	50.000	50.000
752002	50.000	50.000
752502	52.000	52.000
750403	55.000	55.000
751103	999.000	999.000
751803	48.000	48.000
752503	47.000	47.000
750104	48.000	48.000
750704	43.000	43.000
751504	52.000	52.000
752204	53.000	53.000
750105	45.000	45.000
750805	54.000	54.000
751605	52.000	52.000
752405	47.000	47.000
752805	50.000	50.000

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WHITESBURG BOAT DOCK

DATE	CARBONATE	HYDROXIDE
710606	999.000	999.000
711106	.000	.000
711806	.000	.000
712506	.000	.000
710207	[illegible]	.000
710907	.000	.000
711607	.000	.000
712307	.000	.000
713007	.000	.000
710608	.000	.000
711308	.000	.000
712008	.000	.000
712708	.000	.000
710209	.000	.000
711009	.000	.000
711709	.000	.000
712409	.000	.000
710110	.000	.000
710810	.000	.000
711510	.000	.000
712210	.000	.000
712910	.000	.000
710311	999.000	999.000
710811	.000	.000
711211	.000	.000
710612	.000	.000
711012	999.000	999.000
711912	.000	.000
712412	.000	.000
720101	.000	.000
720301	.000	.000
721101	.000	.000
721801	999.000	999.000
722301	999.000	999.000
722601	.000	.000
720202	.000	.000
720902	.000	.000
721602	.000	.000
722402	.000	.000
720103	.000	.000
720803	999.000	999.000
721703	.000	.000
722203	.000	.000
723003	.000	.000
720604	.000	.000
721304	.000	.000
722004	.000	.000
722604	.000	.000
720305	.000	.000
721005	.000	.000
721705	.000	.000
722505	.000	.000
722905	.000	.000
720806	.000	.000
721506	.000	.000

DATE	CARBONATE	HYDROXIDE
722206	.000	.000
722806	.000	.000
720407	.000	.000
721307	.000	.000
722307	.000	.000
722607	.000	.000
720308	.000	.000
721008	.000	.000
721708	.000	.000
722408	.000	.000
723108	.000	.000
720709	.000	.000
721509	.000	.000
721809	.000	.000
722509	.000	.000
720210	.000	.000
720910	.000	.000
721610	.000	.000
722310	.000	.000
723010	.000	.000
720611	.000	.000
721311	.000	.000
722011	.000	.000
722711	.000	.000
720412	.000	.000
721112	.000	.000
721712	.000	.000
722612	.000	.000
730101	.000	.000
730901	.000	.000
731501	.000	.000
732201	.000	.000
730202	.000	.000
730502	.000	.000
731202	.000	.000
731902	.000	.000
732602	.000	.000
730503	.000	.000
731203	.000	.000
732303	.000	.000
733003	.000	.000
730404	.000	.000
731104	.000	.000
731604	.000	.000
732304	.000	.000
733004	.000	.000
730705	.000	.000
731405	999.000	999.000
732205	.000	.000
732905	.000	.000
730406	000	.000
731106	.000	.000

WHITESBURG BOAT DOCK

DATE	CARBONATE	HYDROXIDE
742603	999.000	999.000
740204	.000	.000
740904	999.000	999.000
741604	.000	.000
742304	.000	.000
743004	999.000	999.000
740605	.000	.000
741305	.000	.000
742005	.000	.000
742705	.000	.000
740406	.000	.000
741106	.000	.000
741806	.000	.000
742506	.000	.000
740207	.000	.000
740907	.000	.000
741607	.000	.000
742307	.000	.000
743007	.000	.000
740608	.000	.000
741308	.000	.000
742208	.000	.000
742708	.000	.000
740409	.000	.000
741009	.000	.000
741709	.000	.000
742409	.000	.000
740110	.000	.000
740810	.000	.000
741510	.000	.000
742410	.000	.000
743010	999.000	999.000
740511	.000	.000
741211	999.000	999.000
742011	.000	.000
742611	.000	.000
740712	.000	.000
741112	.000	.000
741712	.000	.000
742312	.000	.000
750201	.000	.000
750801	.000	.000
751401	.000	.000
752101	.000	.000
752801	.000	.000
750402	999.000	999.000
751402	.000	.000
752002	.000	.000
752502	.000	.000
750403	.000	.000
751103	999.000	999.000
751803	.000	.000
752503	.000	.000
750104	.000	.000
750704	.000	.000
751504	.000	.000
752204	.000	.000
750105	.000	.000
750805	.000	.000
751605	.000	.000
752405	.000	.000
752805	.000	.000

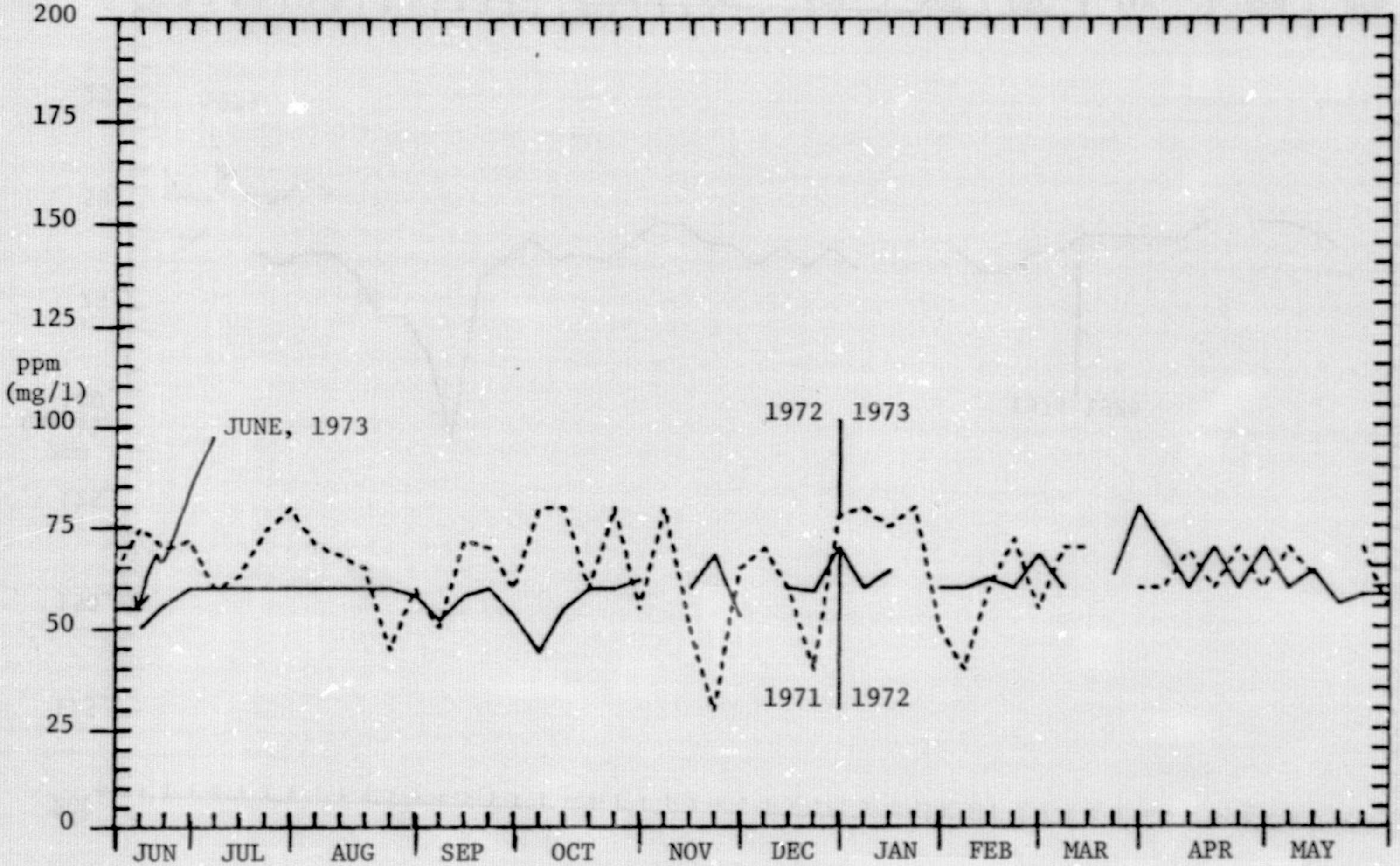

FIGURE 56. WEEKLY ALKALINITY AND BICARBONATE OF WHITESBURG FROM JUNE 6, 1971 TO JUNE 15, 1973

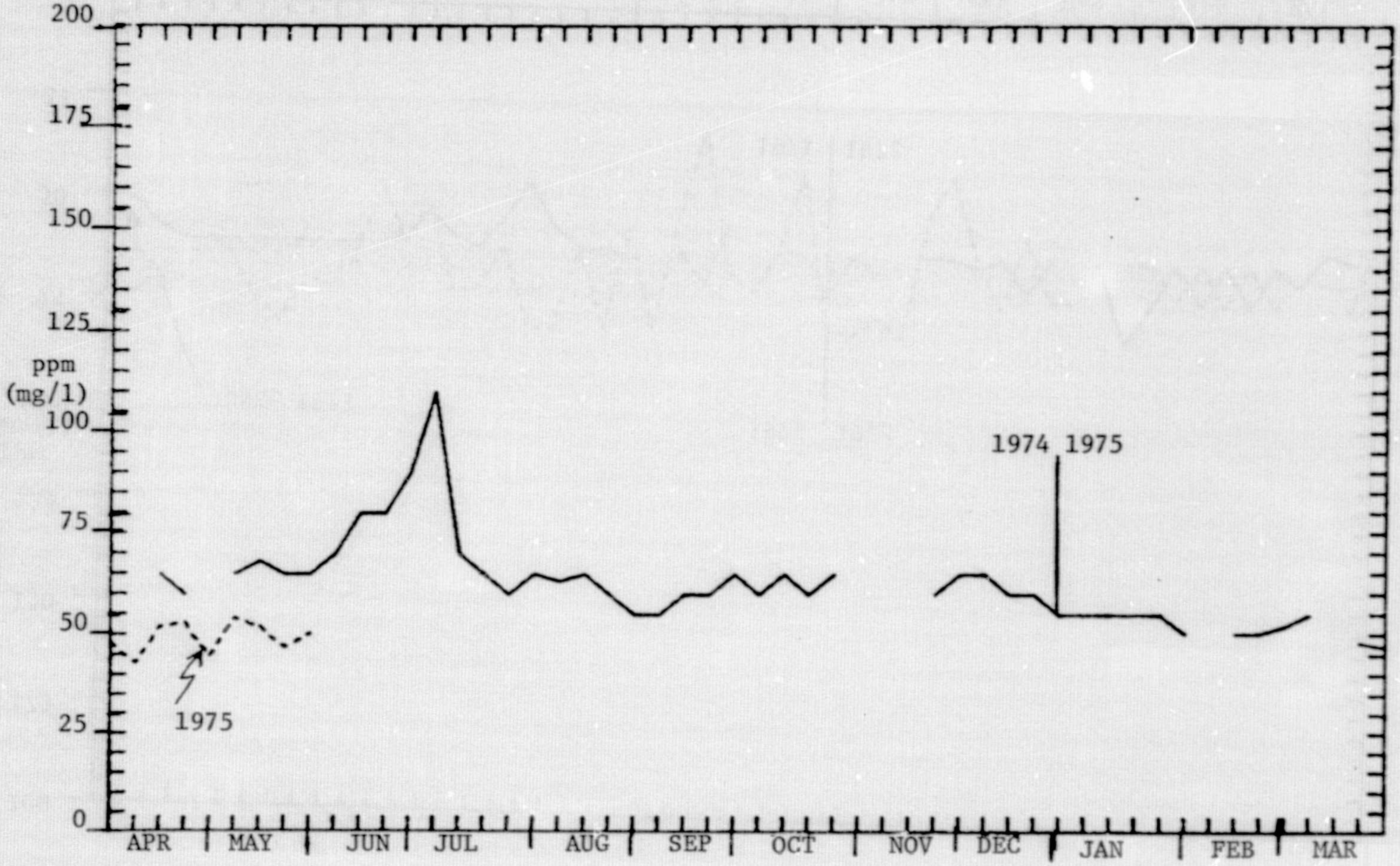

FIGURE 57. WEEKLY ALKALINITY AND BICARBONATE OF WHITESBURG FROM APRIL 2, 1974 TO MAY 28, 1975.

WHEELER-DECATUR

DATE	ALKALINITY	BICARBONATE
710606	999.000	999.000
710906	50.000	50.000
711606	42.000	42.000
712306	50.000	50.000
713006	50.000	50.000
710707	60.000	60.000
711407	50.000	50.000
712107	50.000	50.000
712807	56.000	56.000
710908	60.000	60.000
711108	60.000	60.000
711808	56.000	56.000
712508	58.000	58.000
710109	60.000	60.000
710809	60.000	60.000
711709	52.000	52.000
712309	58.000	58.000
712909	60.000	60.000
710610	60.000	60.000
711310	60.000	60.000
712010	64.000	32.000
712710	52.000	52.000
710311	56.000	56.000
711011	60.000	60.000
711711	64.000	64.000
710712	65.000	65.000
711012	999.000	999.000
711912	999.000	999.000
712412	56.000	56.000
713112	64.000	64.000
720401	64.000	64.000
721201	58.000	58.000
721801	60.000	60.000
722401	50.000	50.000
723101	62.000	62.000
720202	999.000	999.000
720902	52.000	52.000
721402	60.000	60.000
722202	70.000	70.000
722802	60.000	60.000
720603	60.000	60.000
721303	60.000	60.000
722003	73.000	73.000
722803	60.000	60.000
720304	50.000	50.000
721304	60.000	60.000
721704	60.000	60.000
722404	60.000	60.000
720205	50.000	50.000
720805	54.000	54.000
721505	60.000	60.000
722405	60.000	60.000
723105	50.000	50.000
720606	65.000	65.000
721306	70.000	70.000

DATE	ALKALINITY	BICARBONATE
722006	70.000	70.000
722706	55.000	55.000
720607	50.000	50.000
721207	75.000	75.000
721807	60.000	60.000
722507	70.000	70.000
720108	68.000	68.000
720808	60.000	60.000
721508	70.000	70.000
722208	60.000	60.000
722908	50.000	50.000
720509	50.000	50.000
721309	70.000	70.000
722009	65.000	65.000
722709	65.000	65.000
720410	80.000	80.000
721110	75.000	75.000
722010	50.000	50.000
722510	72.000	72.000
720311	65.000	65.000
721011	65.000	65.000
721511	50.000	50.000
722211	50.000	50.000
722911	60.000	60.000
720612	50.000	50.000
721312	75.000	75.000
722112	45.000	45.000
722912	50.000	50.000
730501	70.000	70.000
731001	50.000	50.000
731901	60.000	60.000
732401	999.000	999.000
733101	70.000	70.000
730802	999.000	999.000
731602	45.000	45.000
732202	55.000	55.000
732602	999.000	999.000
730103	50.000	50.000
730903	70.000	70.000
732803	50.000	50.000
733003	999.000	999.000
730604	999.000	999.000
731304	65.000	65.000
731804	65.000	65.000
732704	65.000	65.000
730405	60.000	60.000
731105	60.000	60.000
731805	55.000	55.000
732505	65.000	65.000
730106	55.000	55.000
730806	55.000	55.000
731506	50.000	50.000

WHEELER-DECATUR

DATE	ALKALINITY	BICARBONATE
742703	65.000	65.000
740304	70.000	70.000
741004	70.000	70.000
741704	65.000	65.000
742404	55.000	55.000
740105	65.000	65.000
740805	60.000	60.000
741505	999.000	999.000
742205	65.000	65.000
742905	70.000	70.000
740506	60.000	60.000
741206	50.000	50.000
741906	45.000	45.000
742606	55.000	55.000
740307	999.000	999.000
741007	65.000	65.000
741707	50.000	50.000
742407	60.000	60.000
743107	58.000	58.000
740708	45.000	45.000
741408	65.000	65.000
742108	65.000	65.000
742808	65.000	65.000
740409	55.000	55.000
741109	60.000	60.000
741809	60.000	60.000
742509	60.000	60.000
740210	60.000	60.000
740910	65.000	65.000
741610	60.000	60.000
742310	60.000	60.000
743010	55.000	55.000
740611	55.000	55.000
741311	55.000	55.000
742011	55.000	55.000
742711	60.000	60.000
740612	55.000	55.000
741112	60.000	60.000
741812	55.000	55.000
742412	999.000	999.000
743112	45.000	45.000
750801	60.000	60.000
751501	50.000	50.000
752401	50.000	50.000
752901	50.000	50.000
750702	55.000	55.000
751202	50.000	50.000
751902	53.000	53.000
752502	50.000	50.000
750503	58.000	58.000
751203	999.000	999.000
751903	41.000	41.000
752603	38.000	38.000
750204	50.000	50.000
750904	46.000	46.000
751604	48.000	48.000
752304	50.000	50.000
753004	60.000	60.000
750705	51.000	51.000
751405	49.000	49.000
752405	50.000	50.000
752805	52.000	52.000

WHEELER-DECATUR

DATE	CARBONATE	HYDROXIDE
710606	999.000	999.000
710906	.000	.000
711606	.000	.000
712306	.000	.000
713006	.000	.000
710707	.000	.000
711407	.000	.000
712107	.000	.000
712807	.000	.000
710408	.000	.000
711108	.000	.000
711808	.000	.000
712508	.000	.000
710109	.000	.000
710809	.000	.000
711709	.000	.000
712309	.000	.000
712909	.000	.000
710610	.000	.000
711310	.000	.000
712010	32.000	.000
712710	.000	.000
710311	.000	.000
711011	.000	.000
711711	.000	.000
710712	.000	.000
711012	999.000	999.000
711412	999.000	999.000
712412	.000	.000
713112	.000	.000
720401	.000	.000
721201	.000	.000
721901	.000	.000
722401	.000	.000
723101	.000	.000
720202	999.000	999.000
720902	.000	.000
721402	.000	.000
722202	.000	.000
722802	.000	.000
720603	.000	.000
721303	.000	.000
722003	.000	.000
722803	.000	.000
720304	.000	.000
721004	.000	.000
721704	.000	.000
722404	.000	.000
720205	.000	.000
720905	.000	.000
721505	.000	.000
722405	.000	.000
723105	.000	.000
720606	.000	.000
721306	.000	.000

DATE	CARBONATE	HYDROXIDE
722006	.000	.000
722706	.000	.000
720607	.000	.000
721207	.000	.000
721807	.000	.000
722507	.000	.000
720108	.000	.000
720808	.000	.000
721508	.000	.000
722208	.000	.000
722908	.000	.000
720509	.000	.000
721309	.000	.000
722009	.000	.000
722709	.000	.000
720410	.000	.000
721110	.000	.000
722010	.000	.000
722310	.000	.000
720311	.000	.000
721011	.000	.000
721511	.000	.000
722211	.000	.000
722911	.000	.000
720612	.000	.000
721312	.000	.000
722112	.000	.000
722712	.000	.000
730501	.000	.000
731001	.000	.000
731901	.000	.000
732401	999.000	999.000
733101	.000	.000
730802	.000	.000
731602	.000	.000
732202	.000	.000
732602	999.000	999.000
730103	.000	.000
730903	.000	.000
732803	.000	.000
733003	999.000	999.000
730604	.000	.000
731304	.000	.000
731804	.000	.000
732704	.000	.000
730405	.000	.000
731105	.000	.000
731805	.000	.000
732505	.000	.000
730106	.000	.000
730806	.000	.000
731506	.000	.000

WHEELER-DECATUR

DATE	CARBONATE	HYDROXIDE
742703	.000	.000
740304	.000	.000
741004	.000	.000
741704	.000	.000
742404	.000	.000
740105	.000	.000
740805	.000	.000
741505	999.000	999.000
742205	.000	.000
742905	.000	.000
740506	.000	.000
741206	.000	.000
741906	.000	.000
742606	.000	.000
740307	999.000	999.000
741007	.000	.000
741707	.000	.000
742407	.000	.000
743107	.000	.000
740708	.000	.000
741408	.000	.000
742108	.000	.000
742808	.000	.000
740409	.000	.000
741109	.000	.000
741809	.000	.000
742509	.000	.000
740210	.000	.000
740910	.000	.000
741610	.000	.000
742310	.000	.000
743010	.000	.000
740611	.000	.000
741311	.000	.000
742011	.000	.000
742711	.000	.000
740612	.000	.000
741112	.000	.000
741812	.000	.000
742412	999.000	999.000
743112	.000	.000
750801	.000	.000
751501	.000	.000
752401	.000	.000
752901	.000	.000
750702	.000	.000
751202	.000	.000
751902	.000	.000
752502	.000	.000
750503	.000	.000
751203	999.000	999.000
751903	.000	.000
752603	.000	.000
750204	.000	.000
750904	.000	.000
751604	.000	.000
752304	.000	.000
753004	.000	.000
750705	.000	.000
751405	.000	.000
752405	.000	.000
752805	.000	.000

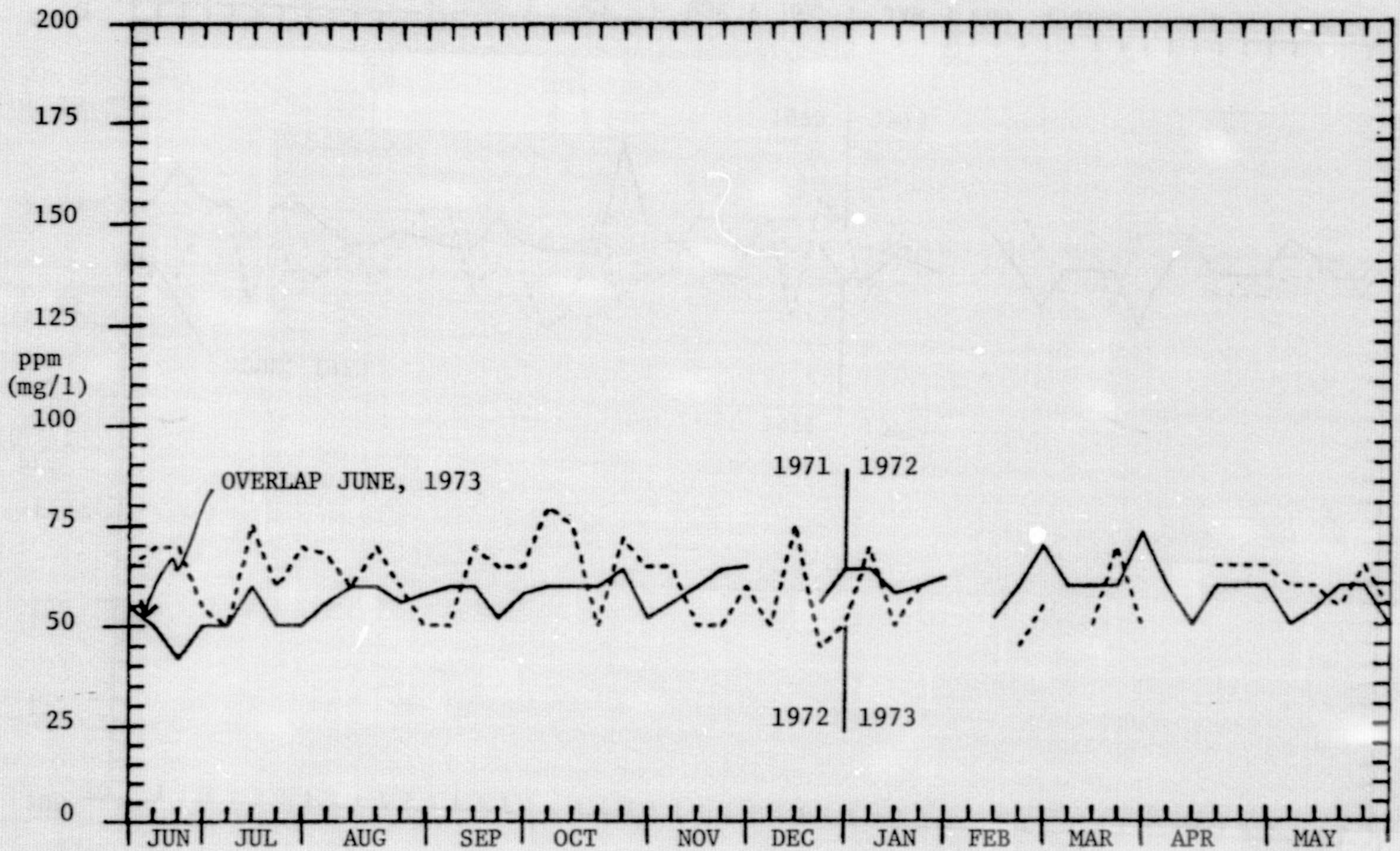

FIGURE 58. WEEKLY ALKALINITY OF WHEELER FROM JUNE 6, 1971 TO JUNE 15, 1973.

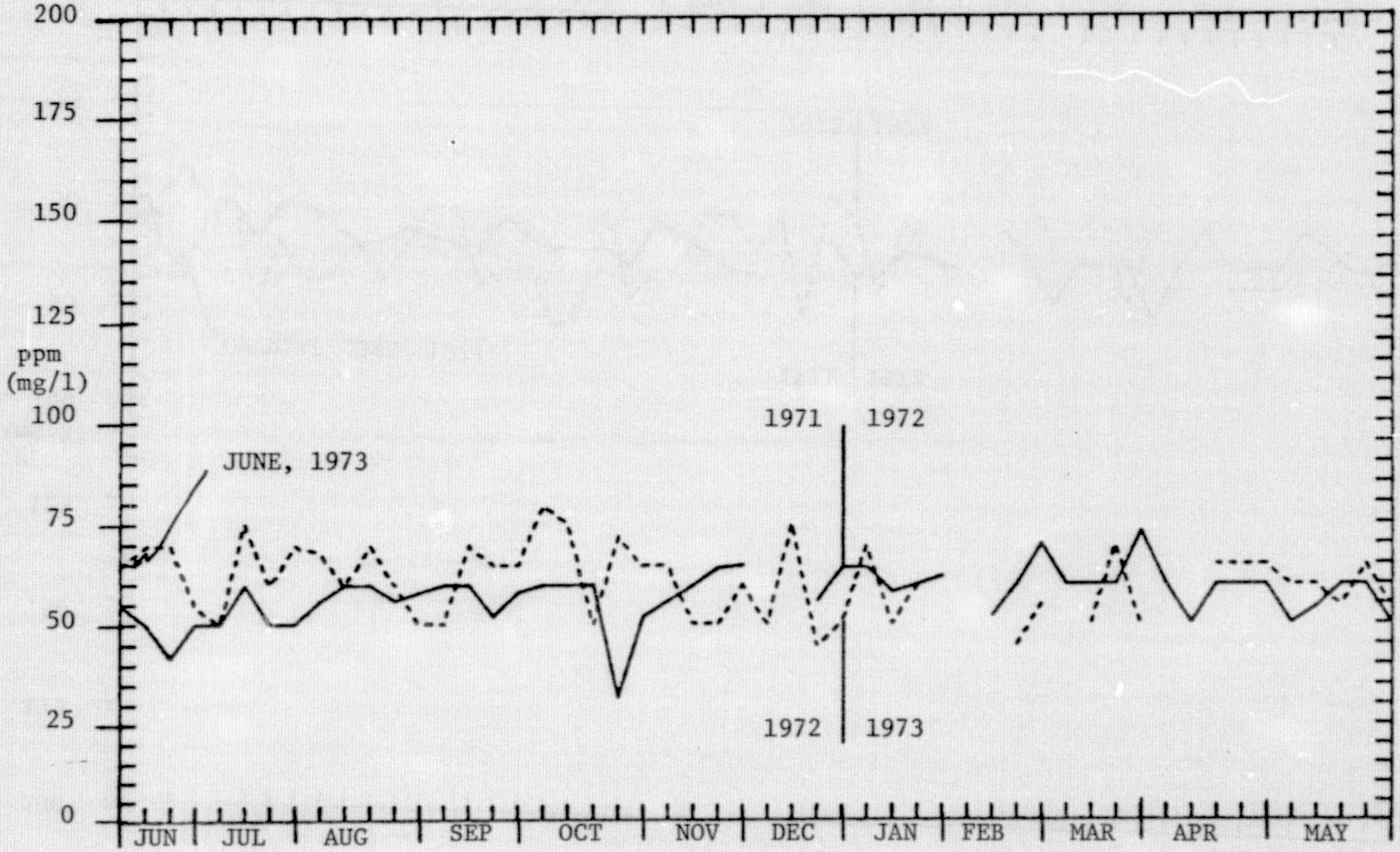

FIGURE 59. WEEKLY BICARBONATE OF WHEELER FROM JUNE 6, 1971 TO JUNE 15, 1973.

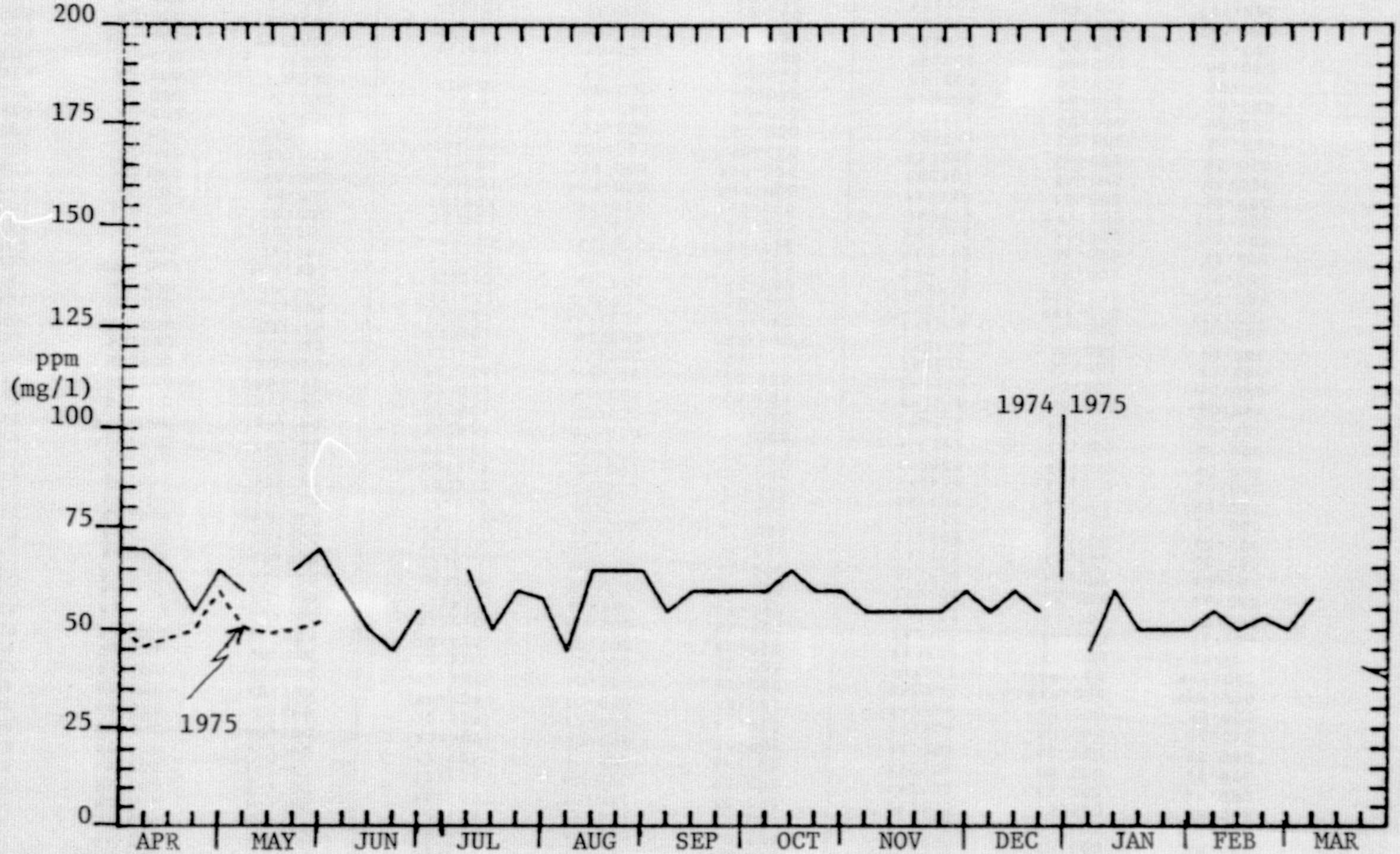

FIGURE 60. WEEKLY ALKALINITY AND BICARBONATE OF WHEELER FROM APRIL 3, 1975 TO MAY 28, 1975.

BROWNS FERRY

DATE	ALKANNITY	BICARBONATE
710606	999.000	999.000
710906	50.000	50.000
711606	43.000	43.000
712306	50.000	50.000
713006	50.000	50.000
710707	56.000	56.000
711407	60.000	60.000
712107	60.000	60.000
712807	54.000	54.000
710408	60.000	60.000
711108	60.000	60.000
711808	60.000	60.000
712508	60.000	60.000
710109	60.000	60.000
710809	52.000	52.000
711709	50.000	50.000
712409	56.000	56.000
712909	60.000	60.000
710610	60.000	60.000
711310	58.000	58.000
712010	60.000	60.000
712710	60.000	60.000
710311	60.000	60.000
711011	55.000	55.000
711711	60.000	60.000
710712	40.000	40.000
711012	999.000	999.000
711412	999.000	999.000
712412	51.000	51.000
713112	36.000	36.000
720401	30.000	30.000
721201	50.000	50.000
721801	50.000	50.000
722401	38.000	38.000
723101	30.000	30.000
720202	999.000	999.000
720902	36.000	36.000
721402	30.000	30.000
722202	50.000	50.000
722802	70.000	70.000
720603	40.000	40.000
721303	36.000	36.000
722003	60.000	60.000
722803	70.000	70.000
720304	40.000	40.000
721304	60.000	60.000
721704	50.000	50.000
722404	999.000	999.000
720205	60.000	60.000
720805	56.000	56.000
721505	60.000	60.000
722405	56.000	56.000
723105	58.000	58.000
720606	70.000	70.000
721306	71.000	71.000

DATE	ALKANNITY	BICARBONATE
722006	70.000	70.000
722706	70.000	70.000
720607	60.000	60.000
721207	65.000	65.000
721807	55.000	55.000
722507	90.000	90.000
720108	60.000	60.000
720808	75.000	75.000
721508	70.000	70.000
722208	50.000	50.000
722908	60.000	60.000
720509	50.000	50.000
721309	62.000	62.000
722009	70.000	70.000
722709	80.000	80.000
720410	70.000	70.000
721110	80.000	80.000
722010	55.000	55.000
722510	65.000	65.000
720311	50.000	50.000
721011	60.000	60.000
721511	55.000	55.000
722211	60.000	60.000
722911	70.000	70.000
720612	57.500	57.500
721312	70.000	70.000
722112	45.000	45.000
722912	55.000	55.000
730501	70.000	70.000
731001	50.000	50.000
731901	60.000	60.000
732401	55.000	55.000
733101	62.000	62.000
730802	999.000	999.000
731602	50.000	50.000
732202	65.000	65.000
732602	999.000	999.000
730103	50.000	50.000
730903	65.000	65.000
732803	55.000	55.000
733003	999.000	999.000
730604	999.000	999.000
731304	70.000	70.000
731804	65.000	65.000
732704	62.000	62.000
730405	60.000	60.000
731105	50.000	50.000
731805	65.000	65.000
732505	999.000	999.000
730106	60.000	60.000
730806	55.000	55.000
731506	60.000	60.000

BROWNS FERRY

DATE	ALKANNITY	BICARBONATE
742703	65.000	65.000
740304	70.000	70.000
741004	65.000	65.000
741704	65.000	65.000
742404	60.000	60.000
740105	60.000	60.000
740805	60.000	60.000
741505	999.000	999.000
742205	70.000	70.000
742905	65.000	65.000
740506	65.000	65.000
741206	55.000	55.000
741906	50.000	50.000
742606	60.000	60.000
740307	999.000	999.000
741007	999.000	999.000
741707	55.000	55.000
742407	55.000	55.000
743107	60.000	60.000
740708	65.000	65.000
741408	60.000	60.000
742108	60.000	60.000
742808	60.000	60.000
740409	55.000	55.000
741109	62.000	62.000
741809	60.000	60.000
742509	60.000	60.000
740210	62.000	62.000
740910	60.000	60.000
741610	60.000	60.000
742310	50.000	50.000
743010	55.000	55.000
740611	60.000	60.000
741311	55.000	55.000
742011	999.000	999.000
742711	999.000	999.000
740612	50.000	50.000
741112	65.000	65.000
741812	58.000	58.000
742412	999.000	999.000
743112	50.000	50.000
750801	55.000	55.000
751501	50.000	50.000
752401	50.000	50.000
752901	50.000	50.000
750702	60.000	60.000
751202	50.000	50.000
751902	50.000	50.000
752502	50.000	50.000
750503	60.000	60.000
751203	999.000	999.000
751903	999.000	999.000
752603	33.000	33.000
750204	40.000	40.000
750904	43.000	43.000
751604	45.000	45.000
752304	49.000	49.000
753004	999.000	999.000
750705	48.000	48.000
751405	53.000	53.000
752405	51.000	51.000
752805	53.000	53.000

BROWNS FERRY

DATE	CARBONATE	HYDROXIDE
710606	999.000	999.000
710906	.000	.000
711606	.000	.000
712306	.000	.000
713006	.000	.000
710707	.000	.000
711407	.000	.000
712107	.000	.000
712807	.000	.000
710408	.000	.000
711108	.000	.000
711808	.000	.000
712508	.000	.000
710109	.000	.000
710809	.000	.000
711709	.000	.000
712409	.000	.000
712909	.000	.000
710610	.000	.000
711310	.000	.000
712010	.000	.000
712710	.000	.000
710311	.000	.000
711011	.000	.000
711711	.000	.000
710712	.000	.000
711012	999.000	999.000
711412	999.000	999.000
712412	.000	.000
713112	.000	.000
720401	.000	.000
721201	.000	.000
721801	.000	.000
722401	.000	.000
723101	.000	.000
720202	999.000	999.000
720902	.000	.000
721402	.000	.000
722202	.000	.000
722802	.000	.000
720603	.000	.000
721303	.000	.000
722003	.000	.000
722803	.000	.000
720304	.000	.000
721004	.000	.000
721704	.000	.000
722404	.000	.000
720205	.000	.000
720905	.000	.000
721505	.000	.000
722405	.000	.000
723105	.000	.000
720606	.000	.000
721306	.000	.000

DATE	CARBONATE	HYDROXIDE
722006	.000	.000
722706	.000	.000
720607	.000	.000
721207	.000	.000
721807	.000	.000
722507	.000	.000
720108	.000	.000
720808	.000	.000
721508	.000	.000
722208	.000	.000
722908	.000	.000
720509	.000	.000
721309	.000	.000
722009	.000	.000
722709	.000	.000
720410	.000	.000
721110	.000	.000
722010	.000	.000
722310	.000	.000
720311	.000	.000
721011	.000	.000
721511	.000	.000
722211	.000	.000
722911	.000	.000
720612	.000	.000
721312	.000	.000
722112	.000	.000
722712	.000	.000
730501	.000	.000
731001	.000	.000
731901	.000	.000
732401	.000	.000
733101	.000	.000
730802	.000	.000
731602	.000	.000
732202	.000	.000
732602	999.000	999.000
730103	.000	.000
730903	.000	.000
732803	.000	.000
733003	999.000	999.000
730604	.000	.000
731304	.000	.000
731804	.000	.000
732704	.000	.000
730405	.000	.000
731105	.000	.000
731805	.000	.000
732505	999.000	999.000
730106	.000	.000
730806	.000	.000
731506	.000	.000

BROWNS FERRY

DATE	CARBONATE	HYDROXIDE
742703	.000	.000
740304	.000	.000
741004	.000	.000
741704	.000	.000
742404	.000	.000
740105	.000	.000
740805	.000	.000
741505	999.000	999.000
742205	.000	.000
742905	.000	.000
740506	.000	.000
741206	.000	.000
741906	.000	.000
742606	.000	.000
740307	999.000	999.000
741007	999.000	999.000
741707	.000	.000
742407	.000	.000
743107	.000	.000
740708	.000	.000
741408	.000	.000
742108	.000	.000
742808	.000	.000
740409	.000	.000
741109	.000	.000
741809	.000	.000
742509	.000	.000
740210	.000	.000
740910	.000	.000
741610	.000	.000
742310	.000	.000
743010	.000	.000
740611	.000	.000
741311	.000	.000
742011	.000	.000
742711	.000	.000
740612	.000	.000
741112	.000	.000
741812	.000	.000
742412	999.000	999.000
743112	.000	.000
750801	.000	.000
751501	.000	.000
752401	.000	.000
752901	.000	.000
750702	.000	.000
751202	.000	.000
751902	.000	.000
752502	.000	.000
750503	.000	.000
751203	999.000	999.000
751903	999.000	999.000
752603	.000	.000
750204	.000	.000
750904	.000	.000
751604	.000	.000
752304	.000	.000
753004	999.000	999.000
750705	.000	.000
751405	.000	.000
752405	.000	.000
752805	.000	.000

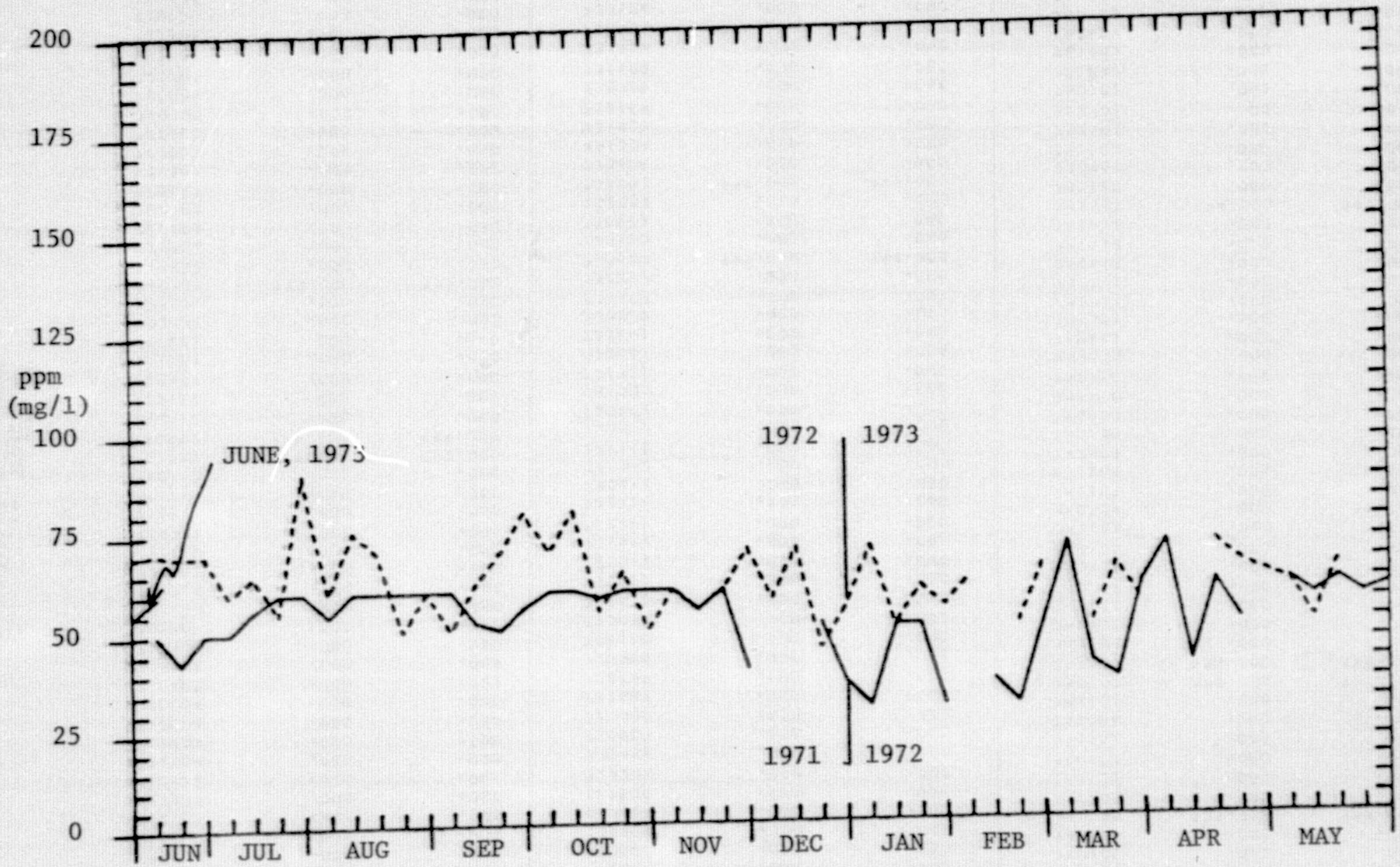

FIGURE 61. WEEKLY ALKALINITY AND BICARBONATE OF BROWNS FERRY FROM JUNE 6,1971 TO JUNE 15,1973.

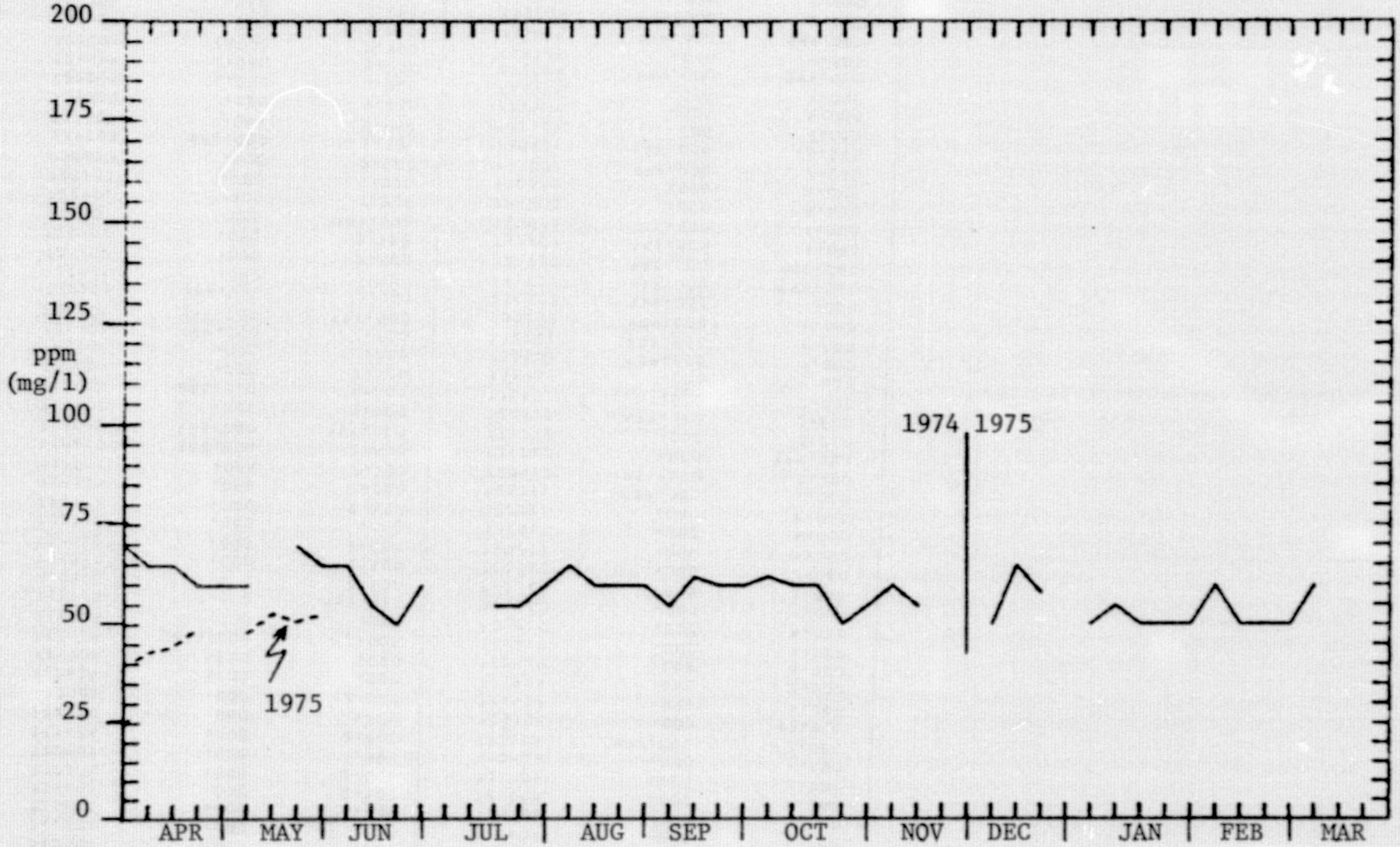

FIGURE 62. WEEKLY ALKALINITY AND BICARBONATE OF BROWNS FERRY FROM APRIL 3, 1974 TO MAY 28, 1975

WHITAKER LAKE

DATE	AMMONIA	CARBON DIOXIDE
710706	.000	2.500
711406	.000	2.500
712106	.000	2.500
712806	.000	2.500
710407	.000	.000
711207	.000	.000
711907	.000	.000
712607	.000	2.500
710208	.000	2.500
710908	.000	.000
711608	.000	2.500
712308	.000	.000
713008	.000	2.000
710609	.000	.000
711309	.000	.000
712009	888.000	2.000
712809	.000	.000
710110	999.000	999.000
710510	.000	2.500
711210	.000	2.500
712010	.000	2.000
712710	.000	.000
710111	.000	2.500
710811	.000	2.000
711511	.000	2.500
710612	888.000	2.500
711012	999.000	999.000
711412	.000	2.500
712412	888.000	4.000
720101	.000	2.500
720301	.000	2.000
721101	888.000	2.500
721801	999.000	999.000
722301	888.000	2.500
722601	.000	2.500
720202	.000	2.500
720902	.000	2.500
721602	.000	999.000
722402	.000	2.500
720103	.000	5.000
720803	.500	2.500
721703	888.000	1.500
722203	.000	5.000
723003	.000	5.000
720604	1.000	5.000
721304	2.000	5.000
722004	1.000	7.500
722604	.000	999.000
720305	.000	2.500
721005	.000	3.000
721705	.000	2.500
722505	.000	2.500
722905	.000	2.500
720806	888.000	8.000
721506	.000	2.000

DATE	AMMONIA	CARBON DIOXIDE
722206	.000	4.000
722806	.000	6.000
720407	.000	2.500
721307	.000	2.000
722007	.000	8.000
722607	.000	6.000
720308	.000	4.000
721008	.000	4.000
721708	.000	2.000
722408	.000	4.000
723108	999.000	2.000
720709	.000	12.000
721509	.000	4.000
721809	.000	2.000
722509	.000	6.000
720210	.000	6.000
720910	.000	4.000
721610	.000	4.000
722310	.000	2.000
723010	.000	2.000
720611	.000	4.000
721311	.000	6.000
722011	.000	8.000
722711	999.000	1.000
720412	999.000	2.000
721112	.000	999.000
721712	.000	2.000
722612	999.000	2.000
730101	.000	2.000
730901	.000	1.000
731501	999.000	1.000
732201	888.000	1.000
730202	999.000	1.000
730502	999.000	1.000
731202	888.000	999.000
731902	999.000	999.000
732602	888.000	1.000
730503	.000	4.000
731203	.000	4.000
732303	.000	4.000
733003	999.000	2.000
730404	888.000	6.000
731104	.000	4.000
731604	.000	4.000
732304	.000	4.000
733004	999.000	999.000
730705	.000	4.000
731405	999.000	999.000
732205	999.000	2.000
732905	.000	3.000
730406	.000	4.000
731106	888.000	.000

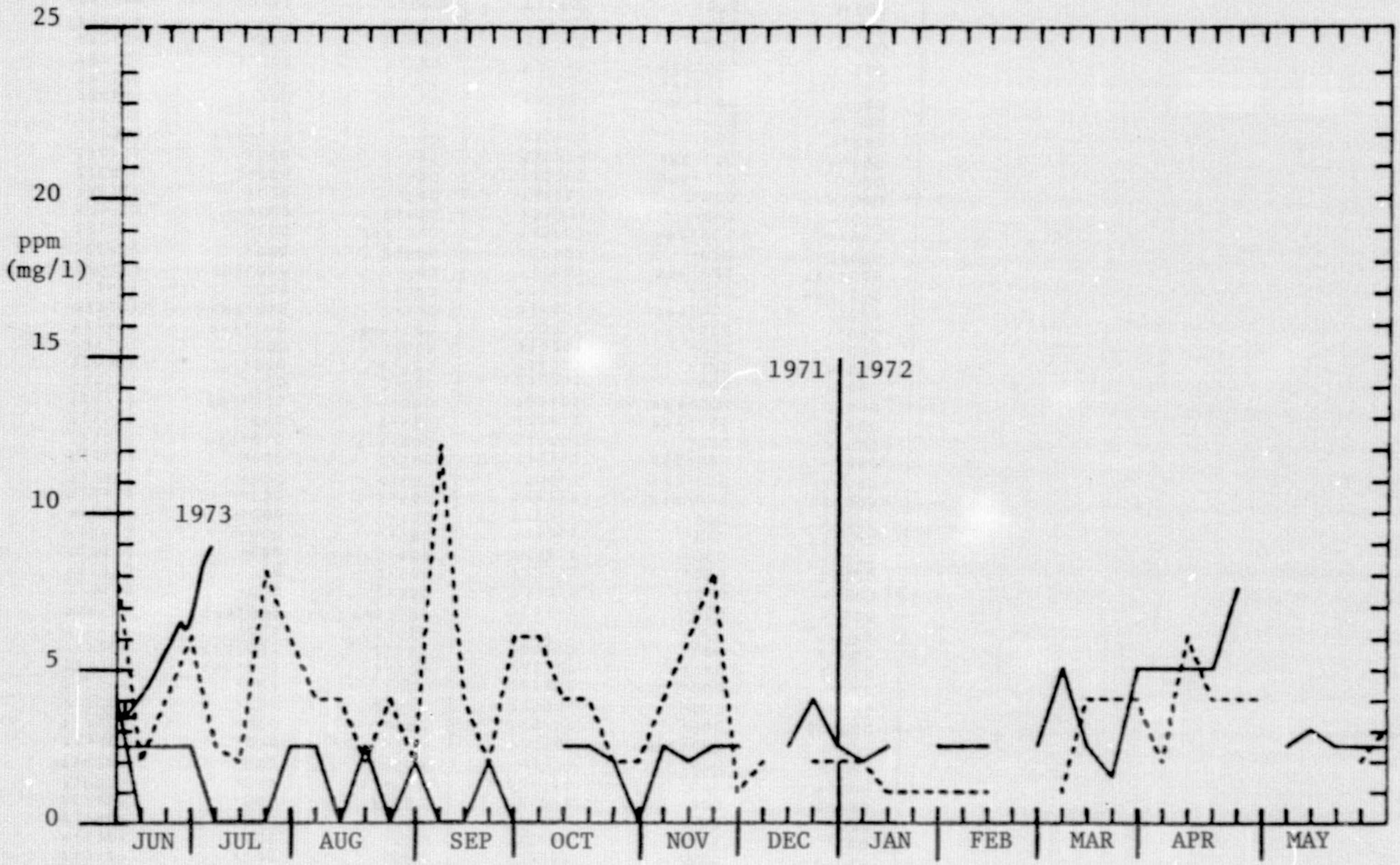

FIGURE 63. WEEKLY DISSOLVED CARBON DIOXIDE OF WHITACKER FROM JUNE 7, 1971 TO JUNE 11, 1973.

MIRROR LAKE

DATE	AMMONIA	CARBON DIOXIDE
710706	.000	.000
711906	.000	999.000
712106	.000	.000
712806	888.000	.000
710407	.000	.000
711207	.000	.000
711907	.000	.000
712607	.000	2.500
710208	.000	2.500
710908	.000	.000
711608	.000	.000
712308	.000	.000
713008	.000	2.500
710609	.000	.000
711309	888.000	2.500
712009	888.000	2.500
712809	.000	2.500
710110	999.000	999.000
710510	.000	2.500
711210	.000	2.500
712010	.000	2.500
712710	.000	.000
710111	.000	2.500
710811	.000	2.500
711511	.000	2.000
710612	.000	2.500
711012	999.000	999.000
711412	.000	2.500
712412	888.000	3.000
720101	.000	2.000
720301	.000	2.500
721101	.000	3.500
721801	999.000	999.000
722301	888.000	2.500
722601	.000	2.500
720202	888.000	2.500
720902	.000	2.500
721602	.000	999.000
722402	.000	5.000
720103	.000	5.000
720803	1.000	2.500
721703	.500	1.500
722203	888.000	3.750
723003	1.000	5.000
720604	1.000	5.000
721304	1.500	7.500
722004	1.500	7.500
722604	.000	5.000
720305	.000	2.500
721005	.000	2.500
721705	.000	3.000
722505	.000	4.000
722905	.000	2.000
720806	888.000	12.000
721506	.000	.000

DATE	AMMONIA	CARBON DIOXIDE
722206	.000	4.000
722806	.000	.000
720407	.000	.000
721307	.000	8.000
722007	.000	8.000
722607	.000	.000
720308	.000	.000
721008	.000	3.000
721708	.000	4.000
722408	.000	8.000
723108	888.000	4.000
720709	.000	10.000
721509	.000	4.000
721809	.000	4.000
722509	.000	8.000
720210	.000	6.000
720910	.000	4.000
721610	.000	4.000
722310	.000	4.000
723010	.000	2.000
720611	.000	4.000
721311	.000	9.000
722011	.000	8.000
722711	999.000	1.000
720412	999.000	2.000
721112	888.000	.000
721712	.000	2.000
722612	999.000	2.000
730101	888.000	2.000
730901	.000	1.000
731501	.500	1.000
732201	.000	1.000
730202	999.000	1.000
730502	999.000	1.000
731202	.000	999.000
731902	999.000	999.000
732602	.050	2.000
730503	888.000	4.000
731203	.000	4.000
732303	.000	4.000
733003	888.000	4.000
730404	888.000	4.500
731104	.000	4.000
731604	.000	6.000
732304	888.000	4.000
733004	999.000	999.000
730705	888.000	4.000
731405	.000	4.000
732205	.000	4.000
732905	.000	3.000
730406	.000	4.000
731106	.200	2.000

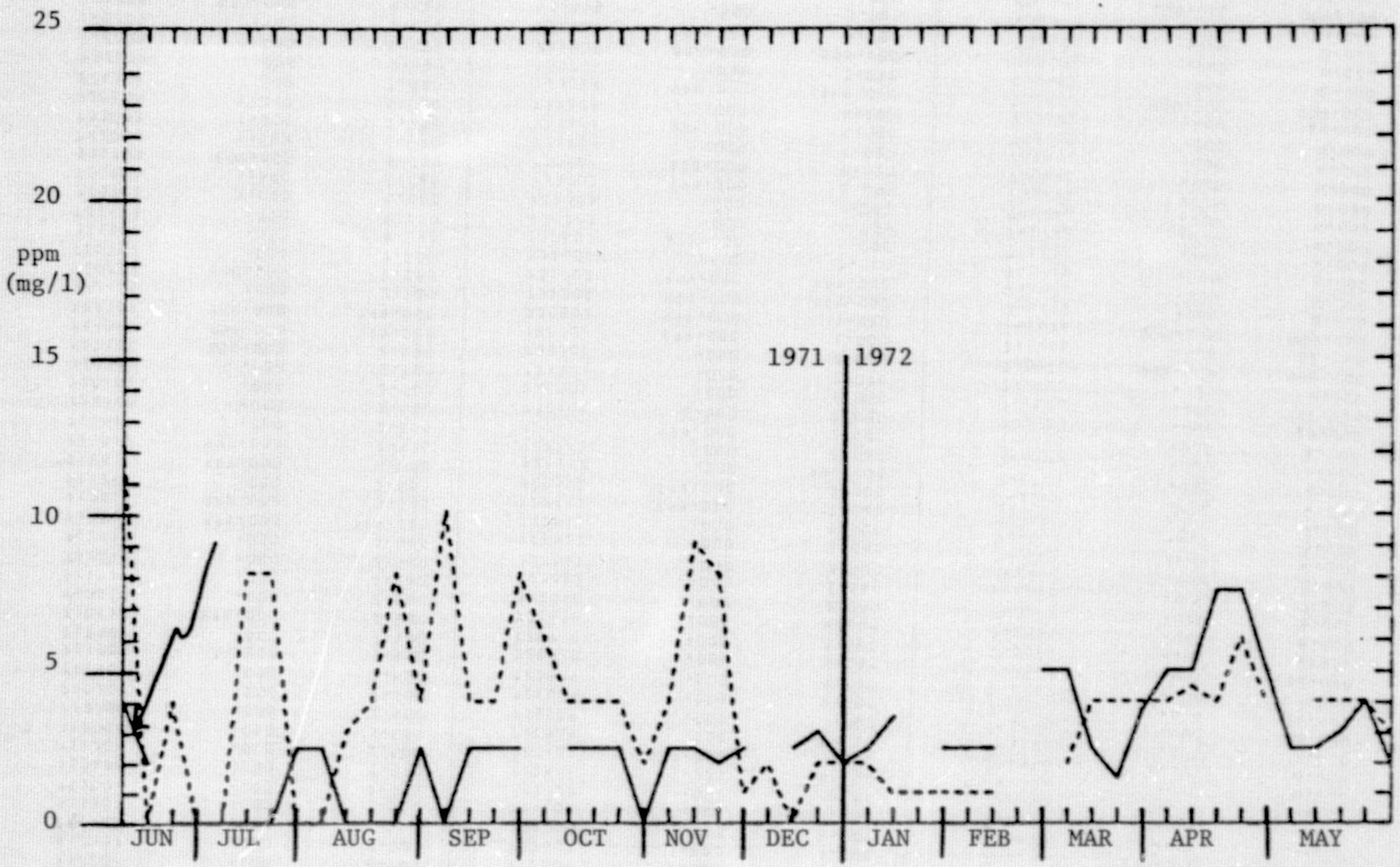

FIGURE 64. WEEKLY DISSOLVED CARBON DIOXIDE OF MIRROR FROM JUNE 7, 1971 TO JUNE 11, 1973.

ORIGINAL PAGE IS OF POOR QUALITY

WHITESBURG BOAT DOCK

DATE	AMMONIA	CARBON DIOXIDE
710606	999.000	999.000
711106	.000	3.500
711806	888.000	3.500
712506	888.000	3.000
710207	.000	2.500
710907	.000	2.500
711607	.000	3.500
712307	.000	2.500
713007	.000	2.500
710608	.000	2.500
711308	.000	2.500
712008	.000	3.500
712708	.000	2.500
710209	.000	2.500
711109	.000	2.500
711709	.000	2.500
712409	.000	2.500
710110	888.000	2.500
710810	.000	2.500
711510	.000	3.500
712210	.000	2.500
712910	.000	3.000
710311	999.000	999.000
710811	888.000	2.500
711211	.000	2.500
710612	888.000	3.500
711012	999.000	2.500
711412	.000	2.500
712412	.000	3.500
720101	.000	2.500
720301	.000	2.500
721101	888.000	2.500
721801	999.000	999.000
722301	999.000	999.000
722601	.000	2.500
720202	888.000	2.500
720902	.000	2.500
721602	.000	999.000
722402	.000	5.000
720103	1.000	5.000
720803	1.500	5.000
721703	888.000	2.500
722203	1.500	5.000
723003	1.000	7.500
720604	1.000	5.000
721304	1.500	7.500
722004	1.000	7.500
722604	1.000	5.000
720305	.000	2.000
721005	888.000	4.000
721705	888.000	2.500
722505	.000	4.500
722905	.000	4.000
720806	.000	12.000
721506	999.000	4.000

DATE	AMMONIA	CARBON DIOXIDE
722206	.000	6.000
722806	.000	6.000
720407	.000	5.000
721307	888.000	8.000
722007	.000	6.000
722607	.000	4.000
720308	.000	6.000
721008	.000	999.000
721708	.000	4.000
722408	.000	8.000
723108	888.000	8.000
720709	.000	8.000
721509	.000	.000
721809	.000	4.000
722509	.000	4.000
720210	.000	6.000
720910	.000	3.000
721610	.000	4.000
722310	.000	2.000
723010	.000	2.000
720611	.000	2.000
721311	.000	2.000
722011	.000	8.000
722711	999.000	2.000
720412	999.000	2.000
721112	.000	999.000
721712	.000	2.000
722612	999.000	2.000
730101	6.000	2.000
730901	.000	1.000
731501	.000	2.000
732201	.000	2.000
730202	999.000	1.000
730502	999.000	1.000
731202	888.000	999.000
731902	999.000	999.000
732602	.000	2.000
730503	888.000	4.000
731203	.000	6.000
732303	.000	4.000
733003	999.000	2.000
730404	888.000	5.000
731104	.000	6.000
731604	888.000	4.000
732304	.000	4.800
733004	999.000	999.000
730705	.000	3.000
731405	888.000	999.000
732205	999.000	4.000
732905	.000	3.000
730406	.000	3.000
731106	.000	2.000

WHITESBURG BOAT DOCK

DATE	AMMONIA	CARBON DIOXIDE
742003	999.000	999.000
740204	.000	6.000
740904	999.000	999.000
741004	.000	4.000
742304	.000	4.000
743004	999.000	999.000
740605	.000	4.000
741305	.000	4.000
742005	.000	4.000
742705	.000	6.000
740406	1.000	6.000
741106	888.000	2.400
741806	.000	12.000
742506	.000	14.000
740207	.000	8.000
740907	.000	12.000
741607	.000	2.400
742307	.000	6.000
743007	.000	8.000
740608	.000	7.200
741308	.000	8.000
742208	.000	6.000
742708	.000	8.000
740409	.000	7.000
741009	.000	4.000
741709	.000	8.000
742409	.000	4.000
740110	.000	6.000
740810	.000	10.000
741510	.000	10.000
742410	.000	8.000
743010	999.000	999.000
740511	.000	12.000
741211	999.000	999.000
742011	.000	8.000
742611	.000	8.000
740712	.000	4.000
741112	.000	4.000
741712	.000	4.000
742312	.000	4.000
750201	.000	6.000
750601	.000	6.000
751401	.000	4.000
752101	.000	4.000
752601	.000	10.000
750402	999.000	999.000
751402	.000	6.000
752002	.000	6.000
752502	.000	6.000
750403	.000	24.000
751103	999.000	999.000
751803	.000	13.600
752503	.000	16.800
750104	.000	16.000
750704	.000	.800
751504	.000	4.500
752204	.000	4.000
750105	.000	8.000
750805	.000	12.500
751605	.000	4.500
752405	.000	8.000
752805	.000	8.000

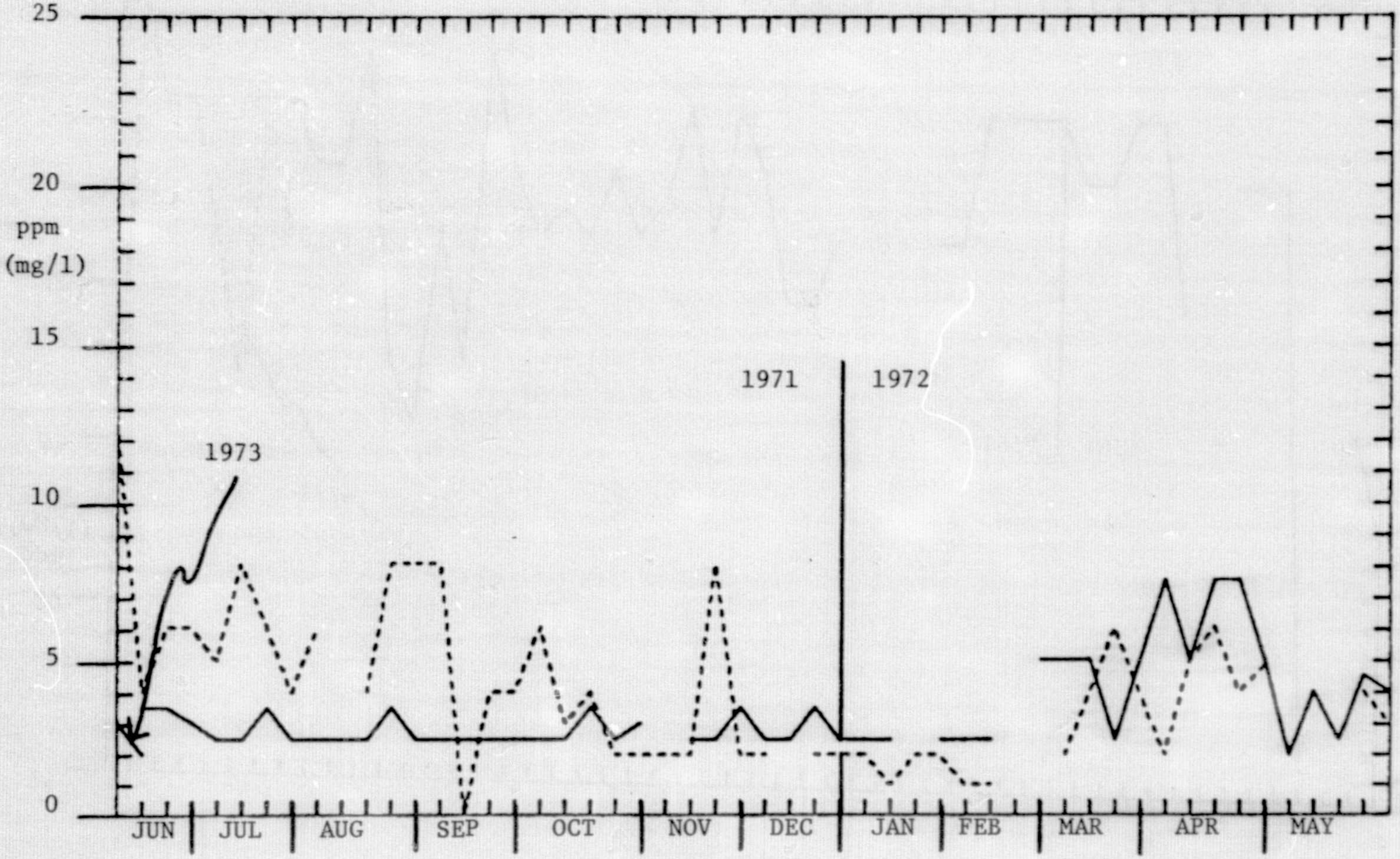

FIGURE 65. WEEKLY DISSOLVED CARBON DIOXIDE OF WHITESBURG FROM JUNE 7, 1971 TO JUNE 11, 1973.

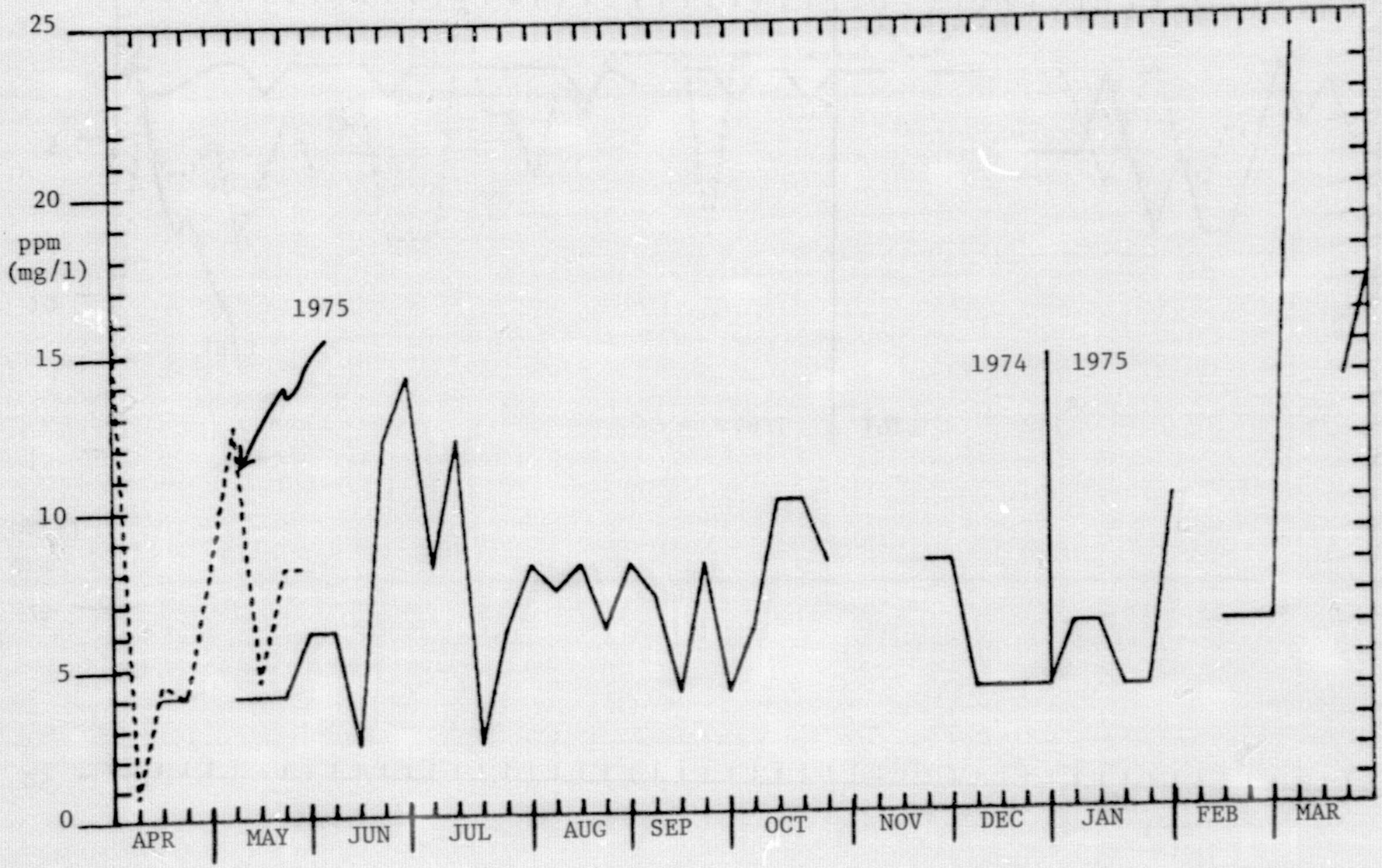

FIGURE 66. WEEKLY DISSOLVED CARBON DIOXIDE OF WHITESBURG FROM MARCH 27, 1974 TO MAY 28, 1975.

WHEELER-DECATUR

DATE	AMMONIA	CARBON DIOXIDE
710506	999.000	999.000
710906	.000	2.500
711606	.000	3.000
712306	.000	3.000
713006	.000	2.500
710707	.000	3.500
711407	.000	3.000
712107	.000	2.500
712807	888.000	2.500
710408	.000	3.000
711108	888.000	3.000
711808	.000	2.500
712508	.000	2.500
710109	.000	2.500
710809	.000	2.500
711709	888.000	2.500
712309	.000	2.500
712909	.000	2.500
710610	.000	3.000
711310	.000	2.500
712010	.000	.000
712710	.000	2.500
710311	.000	3.000
711011	.000	3.000
711711	.000	2.500
710712	.000	2.500
711012	999.000	999.000
711412	999.000	999.000
712412	.000	3.000
713112	.000	1.500
720401	888.000	2.500
721201	888.000	2.500
721801	888.000	2.500
722401	.000	2.500
723101	888.000	2.500
720202	999.000	999.000
720902	.000	999.000
721402	.000	5.000
722202	.000	5.000
722802	.000	7.500
720603	6.500	5.000
721303	1.500	5.000
722003	1.000	5.000
722803	1.000	7.500
720304	888.000	10.000
721304	2.500	5.000
721704	.500	5.000
722404	1.000	5.000
720205	.000	2.500
720805	1.000	2.500
721505	.000	2.500
722405	888.000	2.500
723105	.000	4.000
720606	999.000	2.500
721306	888.000	8.000
722006	.000	6.000
722706	.000	8.000
720607	.000	7.500
721207	.000	8.000
721807	.000	8.000
722507	.000	8.000
720108	.000	6.000
720808	.000	4.000
721508	.000	8.000
722208	.000	6.000
722908	.000	8.000
720509	.000	8.000
721309	888.000	4.000
722009	.000	8.000
722709	.000	4.000
720410	.000	2.000
721110	.000	8.000
722010	.000	10.000
722510	.000	4.000
720311	.000	2.000
721011	.000	2.000
721511	.000	10.000
722211	.000	6.000
722911	.000	8.000
720612	.000	4.000
721312	.000	2.000
722112	.000	2.000
722912	.000	.500
730501	.000	999.000
731001	.000	2.000
731901	.000	2.000
732401	999.000	999.000
733101	999.000	1.000
730802	888.000	999.000
731602	999.000	1.000
732202	888.000	2.000
732602	999.000	999.000
730103	888.000	2.000
730903	.000	4.000
732803	.000	4.000
733003	999.000	999.000
730604	888.000	1.500
731304	.025	4.000
731804	.500	4.000
732704	888.000	999.000
730405	1.000	4.000
731105	.000	4.000
731805	999.000	2.000
732505	.500	4.000
730106	.000	3.000
730806	.000	3.000
731506	.000	6.000
742703	[illegible]	[illegible]
740304	[illegible]	[illegible]
741004	[illegible]	2.000
741704	[illegible]	4.000
742404	[illegible]	4.000
740105	[illegible]	[illegible]
740805	[illegible]	[illegible]
741505	999.000	999.000
742205	.000	[illegible]
742905	1.000	[illegible]
740506	.000	[illegible]
741206	.000	6.000
741906	.000	5.200
742606	.000	4.000
740307	999.000	999.000
741007	.000	5.000
741707	.000	4.000
742407	.000	7.000
743107	.000	5.000
740708	.000	12.000
741408	.000	4.000
742108	.000	6.000
742808	.000	8.000
740409	.000	4.000
741109	.000	6.000
741809	.000	4.000
742509	.000	6.000
740210	.000	6.000
740910	.000	6.000
741610	.000	6.000
742310	.000	10.000
743010	.000	10.000
740611	.000	6.000
741311	.000	8.000
742011	.000	8.000
742711	.000	8.000
740612	.000	2.000
741112	.000	7.200
741812	.000	5.200
742412	999.000	999.000
743112	.000	4.000
750601	.000	6.000
751501	.000	4.000
752401	.000	4.000
752901	.000	4.000
750702	.000	8.000
751202	.000	6.000
751902	.000	4.000
752502	.000	4.000
750503	.000	12.400
751203	999.000	999.000
751903	.000	16.000
752603	.000	16.000
750204	.000	6.000
750904	.000	.800
751604	.000	4.000
752304	.000	8.000
753004	.000	8.500
750705	.000	8.500
751405	.000	5.500
752405	.000	12.000
752805	.000	8.000

ORIGINAL PAGE IS OF POOR QUALITY

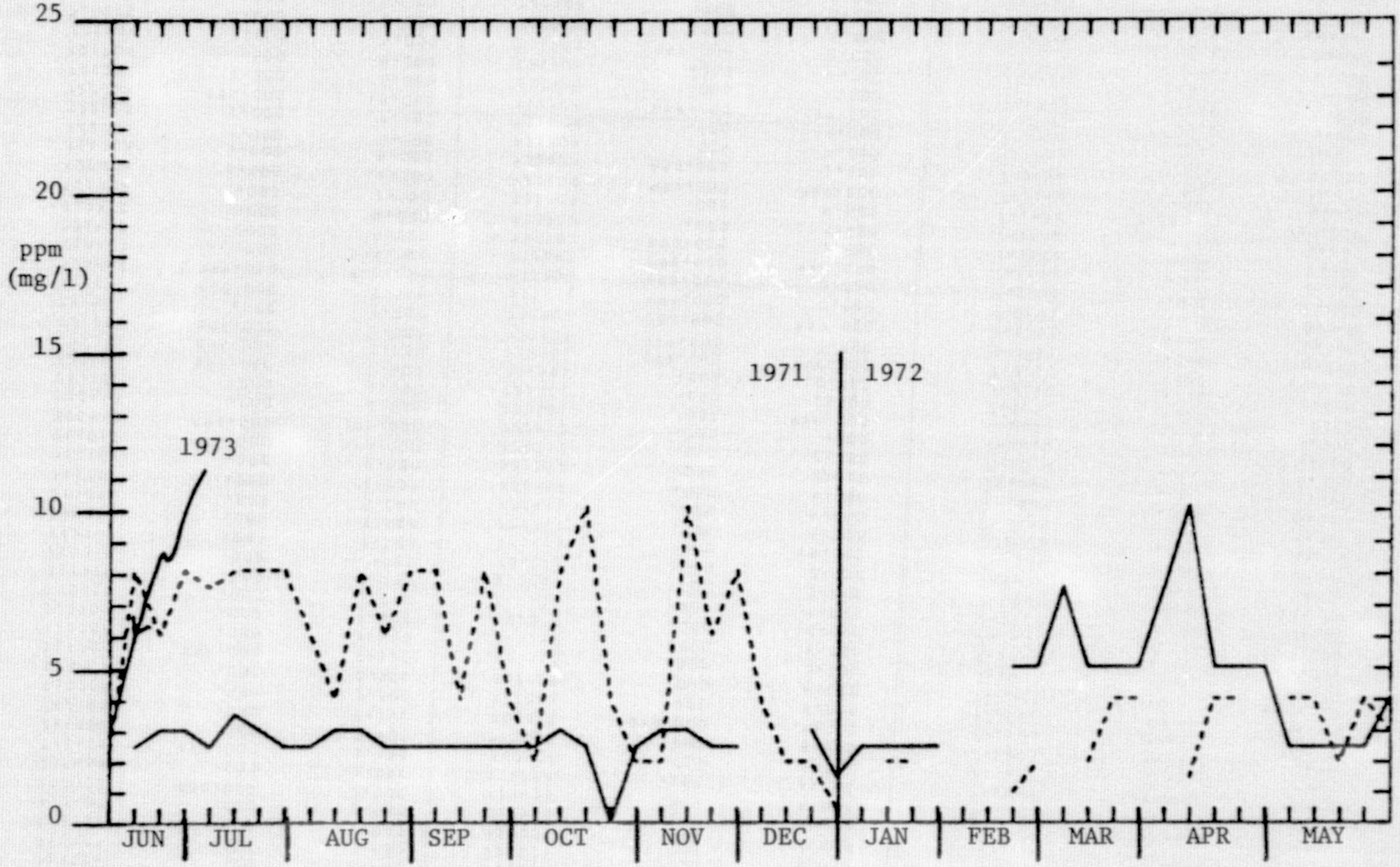

FIGURE 67. WEEKLY DISSOLVED CARBON DIOXIDE OF WHEELER FROM JUNE 6, 1971 TO JUNE 15, 1973.

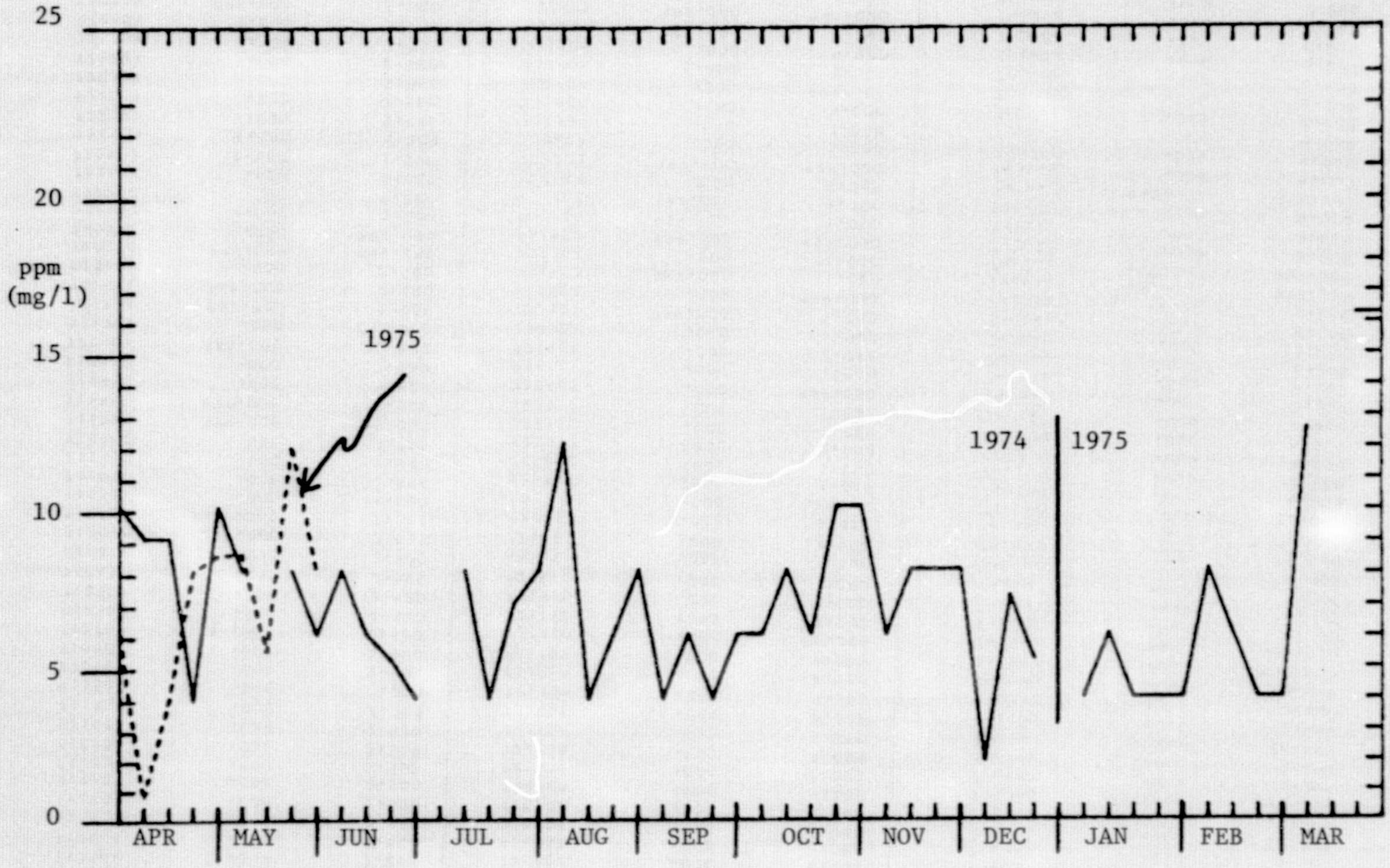

FIGURE 68. WEEKLY DISSOLVED CARBON DIOXIDE OF WHEELER FROM MARCH 27, 1974 TO MAY 28, 1975.

BROWNS FERRY

DATE	AMMONIA	CARBON DIOXIDE
710606	999.000	999.000
710906	.000	5.000
711606	.000	2.500
712306	.000	2.500
713006	.000	2.500
710707	.000	2.500
711407	.000	2.500
712107	.000	2.500
712807	.000	3.500
710408	.000	2.500
711108	.000	2.500
711808	.000	2.000
712508	.000	.000
710109	.000	2.500
710809	.000	2.500
711709	888.000	2.500
712409	.000	2.500
712909	.000	2.500
710610	.000	2.500
711310	.000	2.500
712010	.000	2.500
712710	.000	2.500
710311	.000	4.000
711011	.000	2.500
711711	.000	2.500
710712	.000	3.000
711012	999.000	999.000
711412	999.000	999.000
712412	.000	4.500
713112	.000	2.500
720401	888.000	2.500
721201	.000	2.500
721801	888.000	3.000
722401	888.000	2.500
723101	.000	2.500
720202	999.000	999.000
720902	.000	999.000
721402	1.000	7.500
722202	.000	5.000
722802	.800	5.000
720603	1.500	4.000
721303	1.500	4.500
722003	1.000	5.000
722803	.500	7.500
720304	6.000	5.000
721304	7.000	7.500
721704	1.500	7.500
722404	1.000	3.750
720205	888.000	5.000
720805	2.500	3.000
721505	.000	3.000
722405	.000	2.000
723105	.000	2.500
720606	.000	.000
721306	.000	4.000

DATE	AMMONIA	CARBON DIOXIDE
722006	.000	4.000
722706	.000	4.000
720607	.000	5.000
721207	.000	6.000
721807	.000	6.000
722507	.000	8.000
720108	.000	8.000
720808	.000	3.000
721508	.000	8.000
722208	.000	8.000
722908	.000	6.000
720509	.000	8.000
721309	.000	4.000
722009	.000	8.000
722709	.000	4.000
720410	.000	2.000
721110	.000	8.000
722010	.000	8.000
722510	.000	4.000
720311	.000	.800
721011	.000	2.000
721511	.000	6.000
722211	.000	4.000
722911	.000	6.000
720612	.000	6.000
721312	.000	2.000
722112	.000	2.000
722912	.000	1.000
730501	.000	999.000
731001	.000	1.000
731901	.000	2.000
732401	.000	1.000
733101	999.000	1.000
730802	.000	999.000
731602	999.000	1.000
732202	.000	2.000
732602	999.000	999.000
730103	999.000	1.000
730903	999.000	4.000
732403	.000	4.000
733003	999.000	999.000
730604	.800	3.000
731304	.040	3.000
731804	.250	4.000
732704	.000	999.000
730405	1.000	3.000
731105	.000	4.000
731805	999.000	2.000
732505	999.000	999.000
730106	.000	4.000
730806	999.000	4.000
731506	888.000	4.000

BROWNS FERRY

DATE	AMMONIA	CARBON DIOXIDE
742703	.000	2.000
740504	.000	4.000
741004	.000	4.000
741704	.000	4.000
742404	.000	4.000
740105	.000	10.000
740805	.000	11.000
741505	999.000	999.000
742205	.000	5.000
742905	1.000	5.000
740506	1.000	12.000
741206	.000	6.000
741906	.000	5.200
742606	.000	5.000
740307	999.000	999.000
741007	999.000	999.000
741707	.000	4.000
742407	.000	6.400
743107	.000	7.200
740708	.000	2.000
741408	.000	1.600
742108	.000	4.000
742808	.000	12.000
740409	.000	6.000
741109	.000	8.000
741809	.000	4.000
742509	.000	6.000
740210	.000	4.000
740910	.000	6.000
741610	.000	8.000
742310	.000	8.000
743010	.000	10.000
740611	.000	8.000
741311	.000	8.000
742011	999.000	999.000
742711	999.000	999.000
740612	.000	2.000
741112	.000	4.000
741612	.000	4.000
742412	999.000	999.000
743112	.000	4.000
750601	.000	4.000
751501	.000	6.000
752401	.000	6.000
752901	.000	6.000
750702	.000	8.000
751202	.000	6.000
751902	.000	8.000
752502	.000	4.000
750503	.000	7.200
751203	999.000	999.000
751903	999.000	999.000
752603	.000	6.000
750204	.000	4.000
750904	.000	.800
751604	.000	2.500
752304	.000	10.000
753004	999.000	999.000
750705	.000	7.500
751405	.000	6.000
752405	.000	8.000
752605	.000	8.000

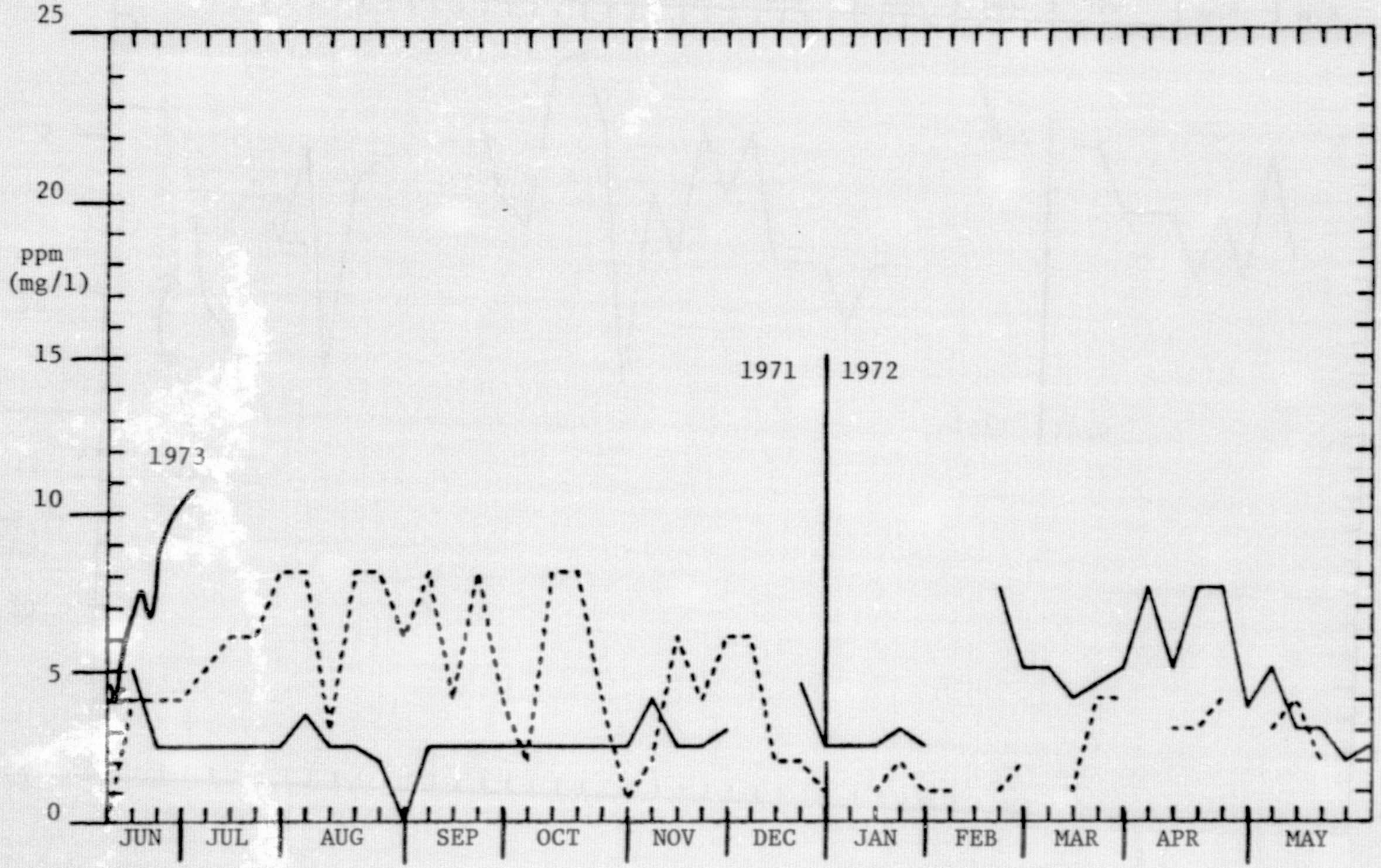

FIGURE 69. WEEKLY DISSOLVED CARBON DIOXIDE OF BROWNS FERRY FROM JUNE 6, 1971 TO JUNE 15, 1973.

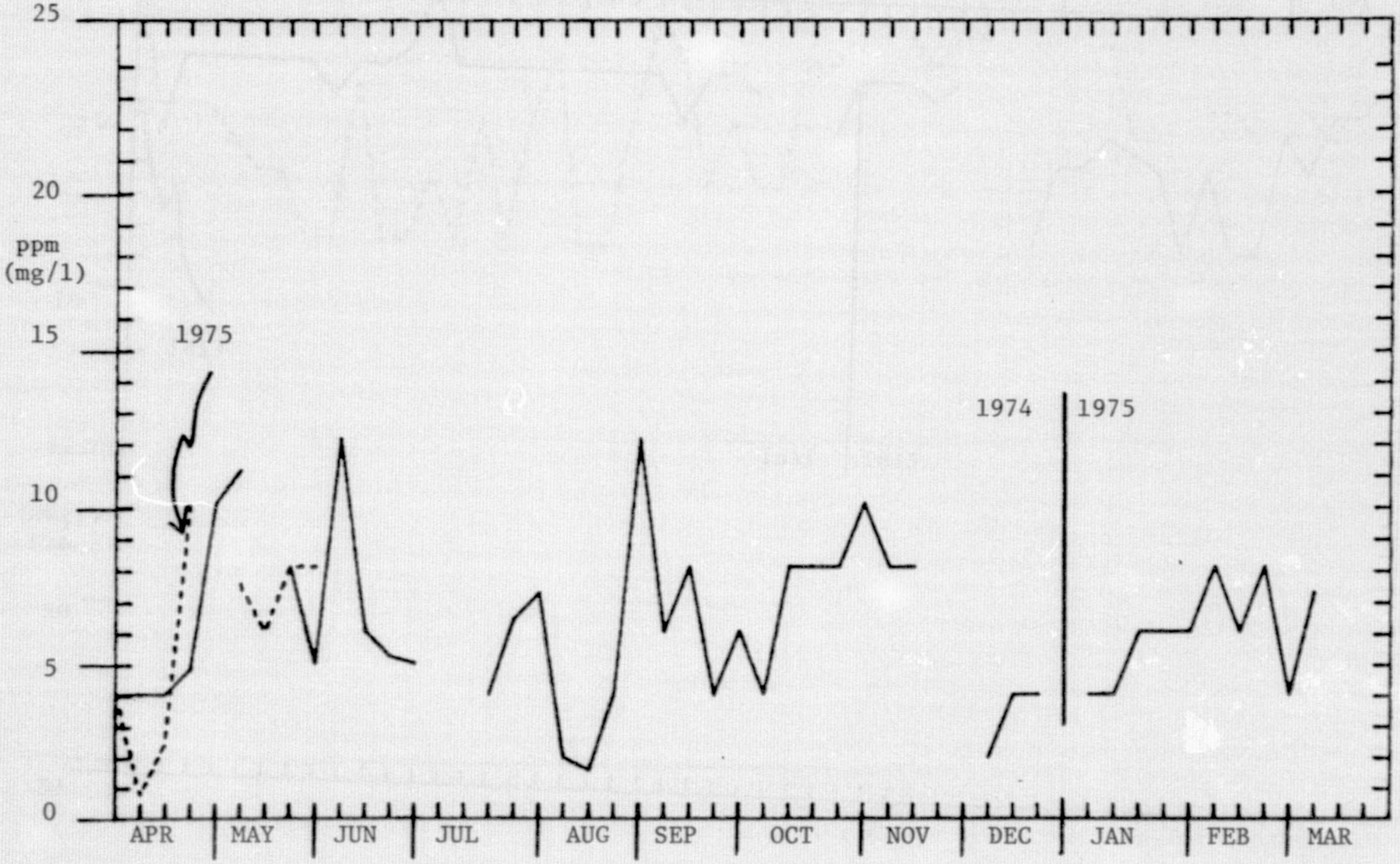

FIGURE 70. WEEKLY DISSOLVED CARBON DIOXIDE OF BROWNS FERRY FROM MARCH 27, 1974 TO MAY 28, 1975.

WHITAKER LAKE

DATE	NO_3	NO_2
710706	.000	999.000
711406	.000	999.000
712106	.000	999.000
712806	.000	999.000
710407	.000	999.000
711207	.000	999.000
711907	.000	999.000
712607	.000	999.000
710208	.000	999.000
710908	.000	999.000
711608	.000	999.000
712308	.000	999.000
713008	.000	999.000
710609	.000	999.000
711309	.000	999.000
712009	.000	999.000
712809	.000	999.000
710110	999.000	999.000
710510	.000	999.000
711210	.000	999.000
712010	.000	999.000
712710	.000	999.000
710111	.000	999.000
710811	.000	999.000
711511	.000	999.000
710612	.000	999.000
711012	999.000	999.000
711412	.000	999.000
712412	.000	999.000
720101	.000	999.000
720301	.000	999.000
721101	888.000	999.000
721801	999.000	999.000
722301	888.000	999.000
722601	888.000	999.000
720202	.000	999.000
720902	888.000	999.000
721602	999.000	999.000
722402	888.000	999.000
720103	888.000	999.000
720803	.000	999.000
721703	888.000	999.000
722203	.500	999.000
723003	888.000	999.000
720604	.000	999.000
721304	.000	999.000
722004	.000	999.000
722604	999.000	999.000
720305	.000	999.000
721005	.000	999.000
721705	999.000	999.000
722505	888.000	999.000
722905	.000	999.000
720806	.010	999.000
721506	.000	999.000
722206	.080	999.000
722806	999.000	999.000
720407	999.000	999.000
721307	.250	.000
722007	.000	.000
722607	.000	.000
710308	.000	.000
721008	.050	.000
721708	.020	.000
722408	.350	.000
723108	.350	.000
720709	.450	.000
721509	.000	.000
721809	.000	.000
722509	888.000	.000
720210	.020	.000
720910	.060	.000
721610	.020	.000
722310	.150	.000
723010	.000	.000
720611	.000	.000
721311	.020	.000
722011	.090	.009
722711	.160	888.000
720412	.160	.001
721112	.580	.000
721712	.620	.002
722612	.580	.000
730101	.570	888.000
730901	.580	.000
731501	.568	.001
732201	.720	.000
730202	.900	.005
730502	.600	.005
731202	.565	.004
731902	1.020	.003
732602	.540	.005
730503	.480	888.000
731203	.650	999.000
732303	.830	.009
733003	.530	.002
730404	.410	.003
731104	.370	.003
731604	.375	.002
732304	35.000	.002
733004	41.000	.000
730705	29.000	.000
731405	21.000	.003
732205	20.000	.004
732905	33.000	.006
730406	21.000	.000
731106	18.000	.001

MIRROR LAKE

DATE	---NO_3-	-NO_2-
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711406	.000	999.000
712106	.000	999.000
712806	.000	999.000
710407	.000	999.000
711207	.000	999.000
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710208	.000	999.000
710908	.000	999.000
711608	.000	999.000
712308	.000	999.000
713008	.000	999.000
710609	.000	999.000
711309	.000	999.000
712009	.000	999.000
712809	.000	999.000
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710510	.000	999.000
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710612	.000	999.000
711012	999.000	999.000
711412	.000	999.000
712412	.000	999.000
720101	.000	999.000
720301	.000	999.000
721101	888.000	999.000
721801	999.000	999.000
722301	888.000	999.000
722601	.000	999.000
720202	.000	999.000
720902	.800	999.000
721602	999.000	999.000
722402	888.000	999.000
720103	888.000	999.000
720803	.000	999.000
721703	888.000	999.000
722203	.500	999.000
723003	888.000	999.000
720604	.000	999.000
721304	.000	999.000
722004	.000	999.000
722604	999.000	999.000
720305	.000	999.000
721005	.000	999.000
721705	.000	999.000
722505	.000	999.000
722905	.000	999.000
720806	.030	999.000
721506	.000	888.000

DATE	NO_3	NO_2
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722806	.020	.000
720407	999.000	999.000
721307	.040	.000
722007	.000	.000
722607	.000	.000
710308	.000	.000
721008	.000	.000
721708	.040	.000
722408	.040	.000
723108	.060	.000
720709	.055	.000
721509	.020	.000
721809	.000	888.000
722509	888.000	.000
720210	.060	888.000
720910	.060	888.000
721610	.015	888.000
722310	.122	.000
723010	.140	888.000
720611	.130	.000
721311	.160	.005
722011	.140	888.000
722711	.240	.004
720412	.218	.001
721112	.255	.004
721712	.345	.000
722612	.440	.010
730101	.421	.006
730901	.516	.000
731501	.210	.005
732201	.550	.002
730202	.640	.004
730502	.500	.007
731202	.450	.002
731902	.610	.005
732602	.450	.001
730503	.550	.005
731203	.410	999.000
732303	.550	.005
733003	.440	.002
730404	.370	.002
731104	999.000	.003
731604	.310	.004
732304	38.000	.003
733004	32.000	.000
730705	31.000	.001
731405	35.000	.000
732205	21.000	.002
732905	20.000	.005
730406	21.000	.001
731106	32.000	.002

WHITESBURG BOAT DOCK

DATE	NO3	NO2
710606	999.000	999.000
711106	.010	999.000
711806	.000	999.000
712506	.000	999.000
710207	.000	999.000
710907	.000	999.000
711607	.000	999.000
712307	.000	999.000
713007	.000	999.000
710608	.000	999.000
711308	.000	999.000
712008	.000	999.000
712708	.000	999.080
710209	.000	999.000
711009	.000	999.000
711709	.000	999.000
712409	.000	999.000
710110	.000	999.000
710810	.000	999.000
711510	.000	999.000
712210	.000	999.000
712910	.000	999.000
710311	999.000	999.000
710811	.000	999.000
711211	.000	999.000
710612	.000	999.000
711012	999.000	999.000
711412	.000	999.000
712412	.000	999.000
720101	888.000	999.000
720301	888.000	999.000
721101	888.000	999.000
721801	999.000	999.000
722301	999.000	999.000
722601	.000	999.000
720202	999.000	999.000
720902	888.000	999.000
721602	999.000	999.000
722402	888.000	999.000
720103	888.000	999.000
720803	888.000	999.000
721703	888.000	999.000
722203	.500	999.000
723003	888.000	999.000
720604	.000	999.000
721304	888.000	999.000
722004	.000	999.000
722604	999.000	999.000
720305	.000	999.000
721005	888.000	999.000
721705	.000	999.000
722505	888.000	999.000
722905	.000	999.000
720806	.310	999.000
721506	.200	888.000

DATE	NO3	NO2
722206	.130	.000
722806	.225	.002
720407	999.000	999.000
721307	.500	.010
722007	.200	.008
722607	.280	888.000
710308	.150	.005
721008	.230	.010
721708	.210	.005
722408	.220	888.000
723108	.205	.010
720709	.215	.005
721509	.200	888.000
721809	.070	888.000
722509	.000	999.000
720210	.280	.010
720910	.240	888.000
721610	.320	.010
722310	.330	888.000
723010	.420	.005
720611	.350	888.000
721311	.400	.005
722011	.140	888.000
722711	.230	.007
720412	.340	888.000
721112	.400	.000
721712	.410	.007
722612	.378	888.000
730101	.500	.009
730901	.400	.000
731501	.500	.010
732201	.430	.000
730202	.490	.001
730502	.570	.008
731202	.430	.013
731902	.550	.007
732602	.370	.003
730503	.300	.000
731203	999.000	999.000
732303	.435	.025
733003	.376	.004
730404	.205	.004
731104	.510	.008
731604	.570	.018
732304	54.000	.008
733004	41.000	.000
730705	38.000	.005
731405	42.000	.008
732205	39.000	.004
732905	35.000	.004
730406	31.000	.000
731106	35.000	.000

WHITESBURG BOAT DOCK

DATE	NO3	NO2
742603	999.000	999.000
740204	.000	.000
740904	999.000	999.000
741604	999.000	999.000
742304	34.000	.005
743004	999.000	999.000
740605	31.000	.005
741305	35.000	.005
742005	35.000	.004
742705	28.000	.005
740406	23.000	.010
741106	31.000	.000
741806	23.800	.005
742506	30.000	.010
740207	44.000	.078
740907	28.000	.008
741607	23.000	.005
742307	26.000	.005
743007	29.000	.008
740608	35.000	.015
741308	38.000	.040
742208	29.000	.005
742708	31.200	.008
740409	32.000	.004
741009	38.000	.010
741709	25.000	.001
742409	22.000	.005
740110	28.000	.006
740810	30.000	.008
741510	52.000	.002
742410	35.000	.002
743010	999.000	999.000
740511	10.000	.000
741211	999.000	999.000
742011	35.000	.000
742611	31.500	.002
740712	999.000	.005
741112	20.000	.000
741712	999.000	.001
742312	16.000	.000
750201	30.300	.010
750801	37.000	.005
751401	26.000	.001
752101	37.000	.010
752801	28.000	.001
750402	999.000	999.000
751402	31.000	.001
752002	40.000	.001
752502	50.000	.001
750403	24.000	.050
751103	999.000	999.000
751803	39.000	.004
752503	36.000	.004
750104	10.000	.001
750704	.750	.012
751504	.750	.002
752204	.750	.001
750105	.700	.002
750805	.600	.001
751605	.600	.000
754205	.400	.000
752805	.900	.001

WHEELER-DECATUR

DATE	--NO3--	--NO2--
710606	999.000	999.000
710906	.000	999.000
711606	.000	999.000
712306	.000	999.000
713006	.000	999.000
710707	.000	999.000
711407	.000	999.000
712107	.000	999.000
712807	.000	999.000
710408	.000	999.000
711108	.000	999.000
711808	.000	999.000
712508	.000	999.000
710109	.000	999.000
710809	.000	999.000
711709	.000	999.000
712309	.000	999.000
712909	.000	999.000
710610	.000	999.000
711310	.000	999.000
712010	.000	999.000
712710	.000	999.000
710311	.000	999.000
711011	.000	999.000
711711	.000	999.000
710712	.000	999.000
711012	999.000	999.000
711912	999.000	999.000
712412	.000	999.000
713112	888.000	999.000
720901	.000	999.000
721201	888.000	999.000
721801	888.000	999.000
722401	.000	999.000
723101	.000	999.000
720202	999.000	999.000
720902	888.000	999.000
721402	.000	999.000
722202	.000	999.000
722802	.000	999.000
720603	999.000	999.000
721303	888.000	999.000
722003	888.000	999.000
722803	.000	999.000
720304	.800	999.000
721304	.000	999.000
721704	888.000	999.000
722404	888.000	999.000
720205	.000	999.000
720805	888.000	999.000
721505	.000	999.000
722405	888.000	999.000
723105	.250	999.000
720606	.000	999.000
721306	.060	999.000

DATE	NO3	NO2
722006	.020	.005
722706	.300	.010
720607	888.000	999.000
721207	.210	.000
721907	.060	.160
722507	.200	.050
720108	.320	.010
720808	.330	.011
711508	.310	888.000
722208	.260	.007
722908	.240	.000
720509	.200	.000
721309	.180	.010
722009	.250	.080
722709	.430	999.000
720410	.322	.011
721110	.320	.014
722010	.300	.005
722510	.430	.005
720311	.230	.010
721011	.400	.010
721511	.450	.350
722211	.450	.007
722911	.490	.009
720612	.550	888.000
721312	.300	.003
722112	.520	.000
722912	.500	.004
730501	.510	.008
731001	.570	.011
731901	.570	.015
732401	999.000	999.000
733101	.390	.008
730802	.445	.025
731602	.580	.018
732202	.508	.000
732602	999.000	999.000
730103	.700	.007
730903	.480	.005
732803	.500	.003
733003	999.000	999.000
730604	.501	.007
731304	1.630	.010
731804	.550	.013
732704	55.000	.008
730405	37.600	.005
731105	40.000	.003
731805	32.600	.005
732505	37.000	.007
730106	31.900	.001
730806	31.800	.006
731506	38.000	.013

WHEELER-DECATUR

DATE	--NO3-	--NO2
742703	62.000	.000
740304	999.000	999.000
741004	50.000	.005
741704	46.000	.002
742404	34.000	.000
740105	37.000	.000
740805	39.000	.004
741505	999.000	999.000
742205	58.000	.063
742905	32.000	.080
740506	27.000	.002
741206	33.000	.030
741906	44.000	.039
742606	30.000	.005
740307	999.000	999.000
741007	29.000	.020
741707	29.000	.010
742407	15.000	.010
743107	31.000	.025
740708	24.000	.010
741408	31.000	.010
742108	31.000	.005
742808	30.500	.008
740409	33.000	.008
741109	31.000	.009
741809	26.000	.008
742509	34.000	.010
740210	39.000	.005
740910	25.000	.008
741610	26.400	.008
742310	26.000	.008
743010	38.000	.003
740611	999.000	.050
741311	999.000	999.000
742011	36.000	.040
742711	36.000	.005
740612	999.000	.008
741112	25.000	.000
741812	999.000	.001
742412	999.000	999.000
743112	25.000	.000
750801	41.000	.001
751501	40.000	.000
752401	26.000	.001
752901	45.000	.001
750702	26.000	.001
751202	27.000	.002
751902	35.000	.001
752502	35.000	.001
750503	48.000	.005
751203	999.000	999.000
751903	21.000	.020
752603	30.000	.007
750204	.500	.005
750904	.700	.000
751604	.700	.005
752304	.800	.001
753004	.500	.012
750705	.650	.011
751405	1.300	.000
754205	.520	.000
752805	.700	.002

BROWNS FERRY

DATE	NO_3	NO_2
710606	999.000	999.000
710906	.000	999.000
711606	.000	999.000
712306	888.000	999.000
713006	.000	999.000
710707	.000	999.000
711407	.000	999.000
712107	.000	999.000
712807	.000	999.000
710408	.000	999.000
711108	.000	999.000
711908	.000	999.000
712508	.000	999.000
710109	.000	999.000
710809	.000	999.000
711709	.000	999.000
712409	.000	999.000
712909	.000	999.000
710610	.000	999.000
711310	.000	999.000
712010	.000	999.000
712710	.000	999.000
710311	.000	999.000
711011	.000	999.000
711711	.000	999.000
710712	.000	999.000
711012	999.000	999.000
711412	999.000	999.000
712412	.000	999.000
713112	.000	999.000
720401	888.000	999.000
721201	888.000	999.000
721801	888.000	999.000
722401	.000	999.000
723101	.000	999.000
720202	999.000	999.000
720902	.000	999.000
721402	.000	999.000
722202	.000	999.000
722802	.000	999.000
720603	888.000	999.000
721303	888.000	999.000
722003	888.000	999.000
722803	888.000	999.000
720304	888.000	999.000
721304	.000	999.000
721704	888.000	999.000
722404	888.000	999.000
720205	.000	999.000
720805	.000	999.000
721505	.000	999.000
722405	.000	999.000
723105	.500	999.000
720606	.000	999.000
721306	.000	999.000

DATE	NO_3	NO_2
722006	.018	.001
722706	.115	.005
720607	888.000	999.000
721707	.140	.000
721807	.050	.000
722507	.110	888.000
720108	.220	888.000
720808	.150	888.000
711508	.180	888.000
722208	.220	.000
722908	.250	.000
720509	.270	.000
721309	.260	.025
722009	.185	.008
722709	.180	999.000
720410	.220	.000
721110	.190	.001
722010	.490	.005
722510	.320	.003
720311	.250	.005
721011	.380	.006
721511	.380	.003
722211	.510	.007
722911	.370	.006
720612	.520	.000
721312	.390	.006
722112	.440	.001
722912	.520	.010
730501	.480	.008
731001	.600	.012
731901	.630	.011
732401	.650	888.000
733101	.450	.010
730802	.590	.000
731602	.810	.004
732202	.320	.002
732602	999.000	999.000
730103	.485	.002
730903	.432	.005
732803	.530	.008
733003	999.000	999.000
730604	.390	.005
731304	.420	.011
731804	.380	.023
732704	52.000	.011
730405	40.000	.006
731105	41.000	.007
731805	31.500	.005
732505	999.000	999.000
730106	32.000	.001
730806	33.000	.004
731506	35.000	.000

BROWNS FERRY

DATE	NO_3	NO_2
742703	58.000	.000
740304	999.000	999.000
741004	43.000	.002
741704	42.000	.000
742404	45.000	.000
740105	30.000	.000
740805	35.000	.005
741505	999.000	999.000
742205	36.000	.000
742905	35.000	.012
740506	23.000	.015
741206	34.000	.012
741906	25.000	.008
742606	27.000	.007
740307	999.000	999.000
741007	999.000	999.000
741707	26.000	.005
742407	16.000	.018
743107	29.000	.020
740708	26.000	.015
741408	36.000	.010
742108	31.000	.009
742808	29.500	.005
740409	35.000	.010
741109	40.000	.008
741809	26.000	.005
742509	35.000	.015
740210	26.000	.010
740910	33.000	.012
741610	34.000	.003
742310	36.000	.004
743010	38.000	.004
740611	50.000	.070
741311	999.000	999.000
742011	999.000	999.000
742711	999.000	999.000
740612	29.000	.005
741112	42.000	.020
741812	999.000	.001
742412	999.000	999.000
743112	34.000	.000
750801	55.000	.005
751501	46.000	.000
752401	26.000	.001
752901	30.000	.002
750702	26.000	.001
751202	23.000	.001
751902	50.000	.001
752502	35.000	.001
750503	54.000	.012
751203	999.000	999.000
751903	999.000	999.000
752603	34.000	.013
750204	1.000	.011
750904	.800	.000
751604	1.000	.003
752304	.850	.002
753004	999.000	999.000
750705	.550	.005
751405	1.000	.000
754205	.000	.000
752805	.600	.008

WHITAKER LAKE

DATE	HARDNESS	CALCIUM	MAGNESIUM
710706	118.000	40.000	78.000
711406	98.000	48.000	50.000
712106	88.000	56.000	32.000
712806	60.000	40.000	20.000
710407	60.000	40.000	20.000
711207	60.000	48.000	12.000
711907	64.000	50.000	14.000
712607	68.000	44.000	24.000
710208	66.000	46.000	20.000
710908	68.000	46.000	22.000
711608	70.000	46.000	24.000
712308	64.000	42.000	22.000
713008	62.000	44.000	18.000
710609	64.000	42.000	22.000
711309	64.000	52.000	12.000
712009	66.000	48.000	18.000
712809	68.000	44.000	24.000
710110	999.000	999.000	999.000
710510	68.000	42.000	24.000
711210	68.000	38.000	20.000
712010	60.000	40.000	20.000
712710	60.000	40.000	20.000
710111	60.000	40.000	20.000
710811	68.000	44.000	24.000
711511	64.000	42.000	22.000
710612	60.000	38.000	22.000
711012	999.000	999.000	999.000
711412	62.000	40.000	22.000
712412	60.000	40.000	20.000
720101	60.000	44.000	16.000
720301	60.000	40.000	20.000
721101	60.000	40.000	20.000
721801	999.000	999.000	999.000
722301	50.000	42.000	8.000
722601	58.000	40.000	18.000
720202	60.000	42.000	18.000
720902	74.000	20.000	54.000
721602	60.000	10.000	50.000
722402	150.000	50.000	100.000
720103	50.000	10.000	40.000
720803	150.000	25.000	125.000
721703	61.000	34.000	27.000
722203	100.000	25.000	75.000
723003	125.000	50.000	75.000
720604	100.000	25.000	75.000
721304	100.000	25.000	75.000
722004	75.000	25.000	50.000
722604	100.000	25.000	75.000
720305	62.000	44.000	18.000
721005	70.000	50.000	20.000
721705	66.000	44.000	22.000
722505	62.000	50.000	12.000
722905	66.000	50.000	16.000
720806	80.000	60.000	20.000
721506	72.000	58.000	14.000

DATE	HARDNESS	CALCIUM	MAGNESIUM
722206	81.000	48.000	33.000
722806	80.000	59.000	21.000
720407	175.000	25.000	150.000
721307	80.000	60.000	20.000
722007	80.000	58.000	22.000
722607	80.000	70.000	10.000
720308	84.000	64.000	20.000
721008	80.000	60.000	20.000
721708	80.000	50.000	30.000
722408	75.000	50.000	25.000
723108	60.000	45.000	15.000
720709	65.000	50.000	15.000
721509	80.000	60.000	20.000
721809	80.000	55.000	25.000
722509	82.000	58.000	24.000
720210	80.000	60.000	20.000
720910	80.000	58.000	22.000
721610	60.000	40.000	20.000
722310	80.000	65.000	15.000
723010	60.000	45.000	15.000
720611	85.000	60.000	25.000
721311	70.000	55.000	15.000
722011	65.000	50.000	15.000
722711	75.000	55.000	20.000
720412	85.000	70.000	15.000
721112	75.000	55.000	20.000
721712	65.000	55.000	10.000
722612	85.000	70.000	15.000
730101	80.000	65.000	15.000
730901	80.000	60.000	20.000
731501	60.000	50.000	10.000
732201	6[illegible].000	55.000	10.000
730202	65.000	55.000	10.000
730502	65.000	55.000	10.000
731202	80.000	55.000	25.000
731902	60.000	50.000	10.000
732602	90.000	65.000	25.000
730503	60.000	50.000	10.000
731203	78.000	68.000	10.000
732303	60.000	54.000	6.000
733003	75.000	55.000	20.000
730404	70.000	50.000	20.000
731104	70.000	55.000	15.000
731604	73.000	60.000	13.000
732304	75.000	60.000	15.000
733004	80.000	60.000	20.000
730705	75.000	62.000	13.000
731405	75.000	65.000	10.000
732205	80.000	60.000	20.000
732905	75.000	60.000	15.000
730406	75.000	60.000	15.000
731106	72.000	55.000	17.000

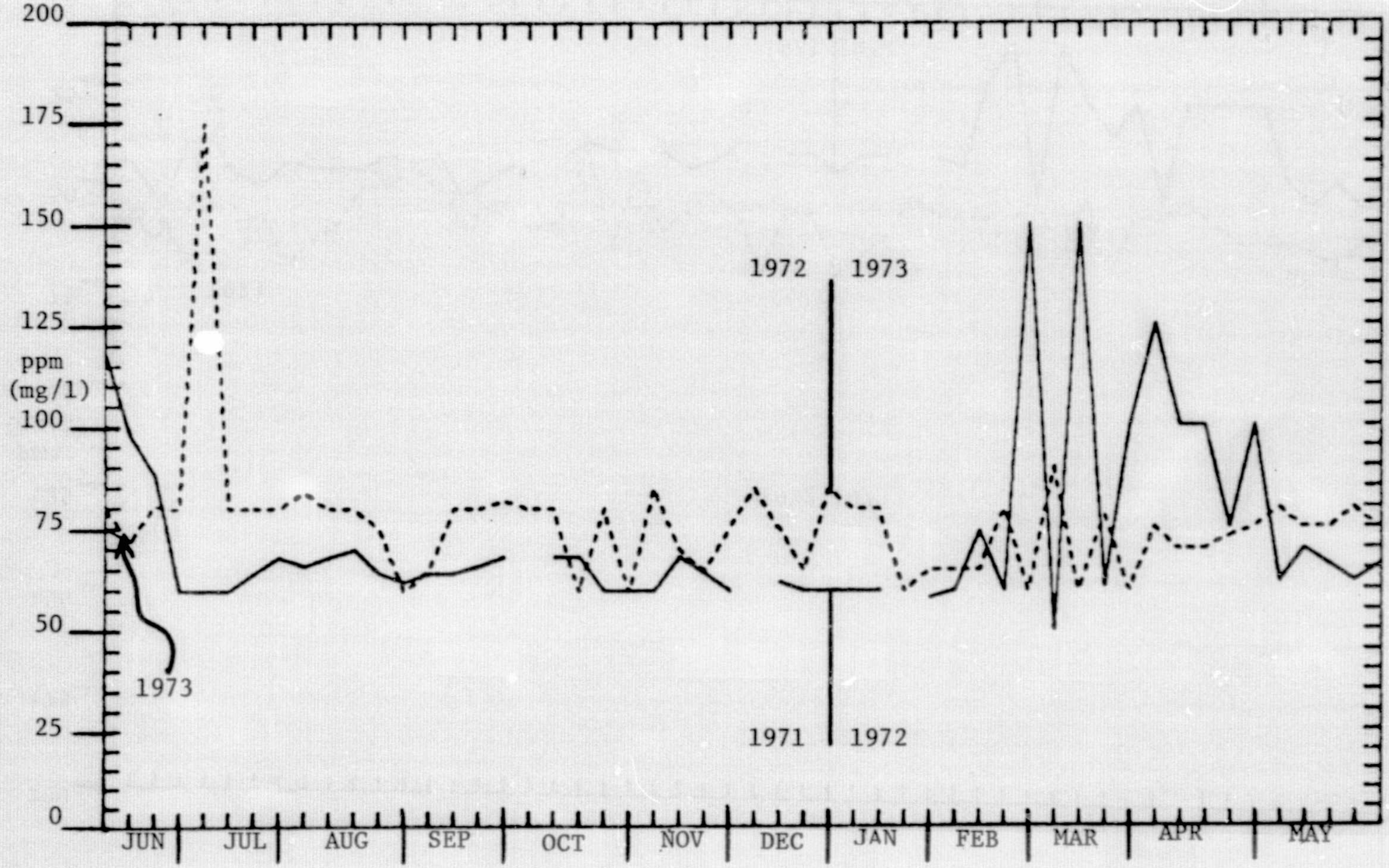

FIGURE 71. WEEKLY HARDNESS OF WHITACKER LAKE FROM JUNE 7, 1971 TO JUNE 11, 1973.

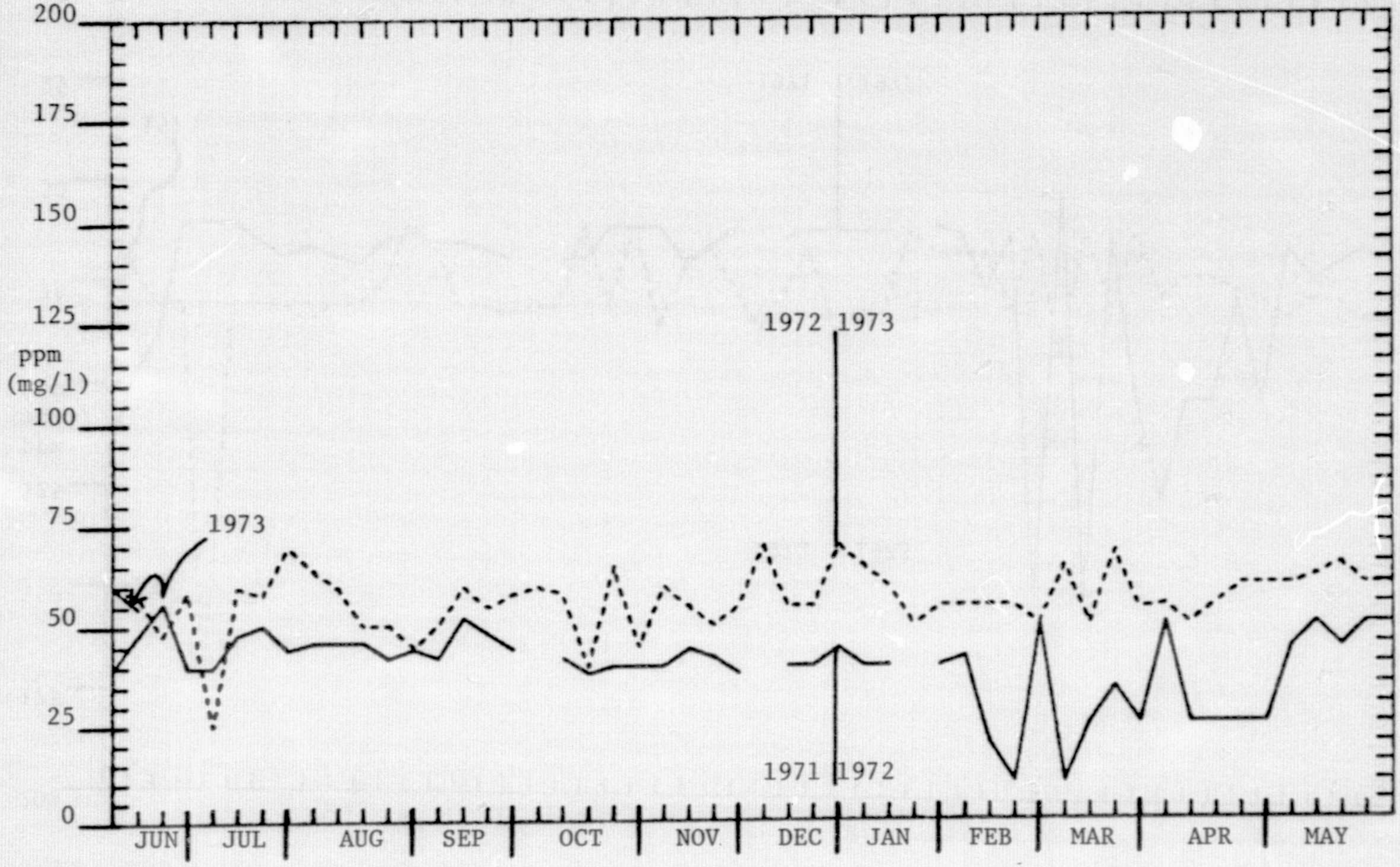

FIGURE 72. WEEKLY CALCIUM OF WHITACKER FROM JUNE 7, 1971 TO JUNE 11, 1973.

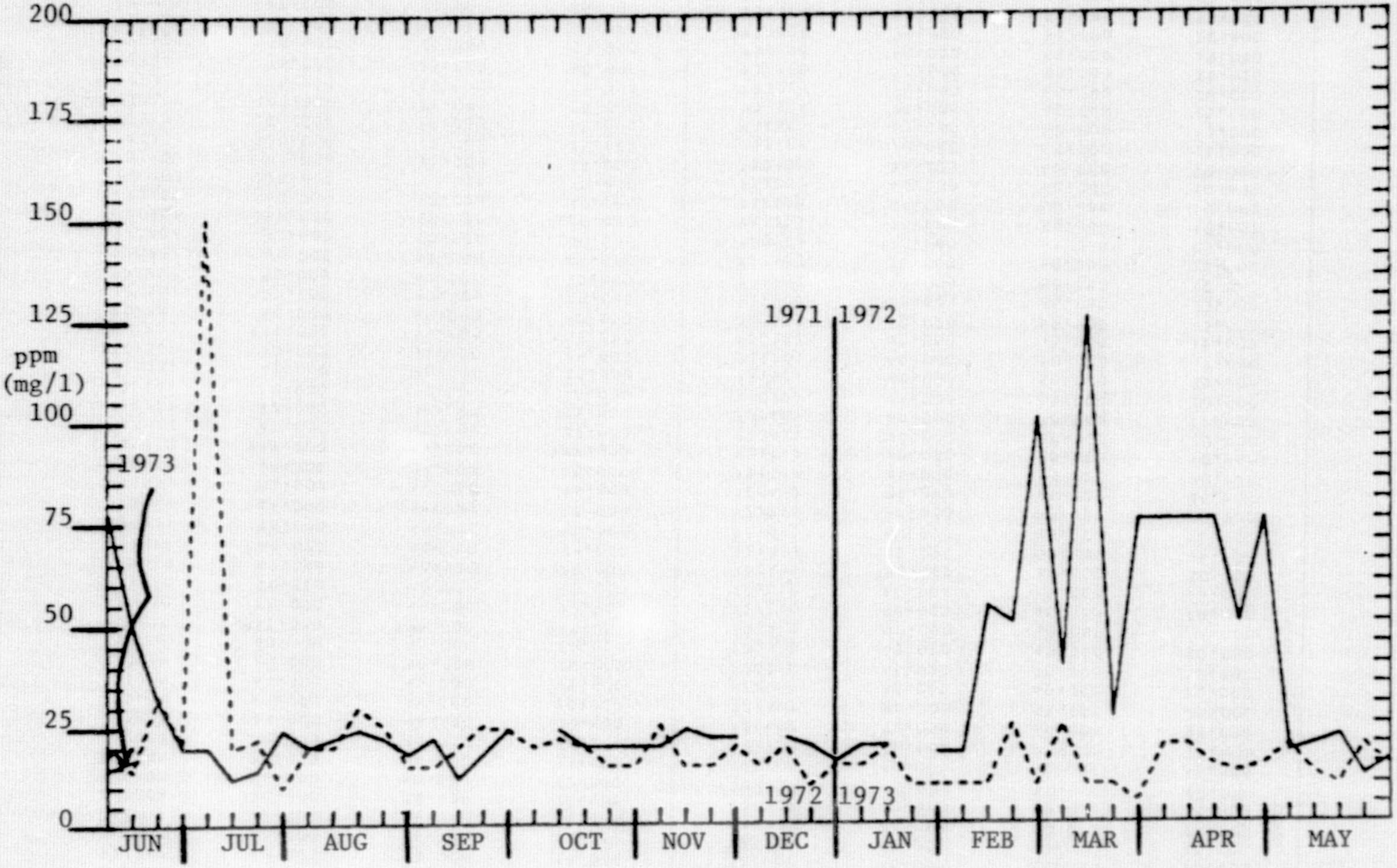

FIGURE 73. WEEKLY MAGNESIUM OF WHITACKER FROM JUNE 7, 1971 TO JUNE 11, 1973.

MIRROR LAKE

DATE	HARDNESS	CALCIUM	MAGNESIUM
710706	144.000	130.000	14.000
711406	72.000	54.000	18.000
712106	88.000	52.000	36.000
712806	60.000	36.000	24.000
710407	54.000	36.000	18.000
711207	60.000	46.000	14.000
711907	60.000	46.000	14.000
712607	66.000	46.000	20.000
710208	70.000	50.000	20.000
710908	66.000	46.000	20.000
711608	70.000	46.000	24.000
712308	68.000	42.000	26.000
713008	66.000	46.000	20.000
710609	64.000	44.000	20.000
711309	65.000	40.000	25.000
712009	60.000	40.000	20.000
712809	60.000	40.000	20.000
710110	999.000	999.000	999.000
710510	64.000	44.000	20.000
711210	70.000	40.000	30.000
712010	62.000	40.000	22.000
712710	64.000	40.000	24.000
710111	58.000	40.000	18.000
710811	66.000	48.000	18.000
711511	58.000	42.000	16.000
710612	64.000	44.000	20.000
711012	999.000	999.000	999.000
711412	62.000	40.000	22.000
712412	62.000	38.000	24.000
720101	60.000	40.000	20.000
720301	60.000	40.000	20.000
721101	60.000	36.000	24.000
721801	999.000	999.000	999.000
722301	60.000	40.000	20.000
722401	50.000	40.000	10.000
720202	50.000	40.000	10.000
720902	68.000	12.000	54.000
721602	120.000	10.000	110.000
722402	150.000	50.000	100.000
720103	60.000	20.000	40.000
720803	175.000	.000	175.000
721703	61.000	23.000	38.000
722203	100.000	25.000	75.000
723003	100.000	25.000	75.000
720604	100.000	25.000	75.000
721304	100.000	25.000	75.000
722004	75.000	25.000	50.000
722604	75.000	25.000	50.000
720305	60.000	41.000	19.000
721005	60.000	40.000	20.000
721705	54.000	40.000	14.000
722505	60.000	42.000	18.000
722905	56.000	38.000	18.000
720806	75.000	60.000	15.000
721506	70.000	50.000	20.000
722206	71.000	55.000	16.000
722806	75.000	50.000	25.000
720407	200.000	25.000	175.000
721307	74.000	55.000	19.000
722007	80.000	40.000	40.000
722607	80.000	65.000	15.000
720308	80.000	59.000	21.000
721008	85.000	56.000	29.000
721708	70.000	50.000	20.000
722408	70.000	50.000	20.000
723108	60.000	45.000	15.000
720709	60.000	45.000	15.000
721509	80.000	60.000	20.000
721809	80.000	55.000	25.000
722509	80.000	60.000	20.000
720210	85.000	70.000	15.000
720910	80.000	60.000	20.000
721610	50.000	50.000	.000
722310	80.000	60.000	20.000
723010	60.000	45.000	15.000
720611	80.000	50.000	30.000
721311	55.000	50.000	5.000
722011	60.000	45.000	15.000
722711	70.000	40.000	30.000
720412	95.000	65.000	30.000
721112	65.000	45.000	20.000
721712	60.000	50.000	10.000
722612	80.000	60.000	20.000
730101	80.000	70.000	12.000
730901	75.000	65.000	10.000
731501	80.000	50.000	30.000
732201	55.000	50.000	5.000
730202	60.000	45.000	15.000
730502	60.000	55.000	5.000
731202	80.000	65.000	15.000
731902	60.000	50.000	10.000
732602	75.000	60.000	15.000
730503	70.000	45.000	25.000
731203	70.000	58.000	12.000
732303	60.000	50.000	10.000
733003	60.000	50.000	10.000
730404	60.000	50.000	10.000
731104	70.000	55.000	15.000
731604	63.000	50.000	13.000
732304	75.000	60.000	15.000
733004	70.000	50.000	20.000
730705	70.000	50.000	20.000
731405	65.000	55.000	10.000
732205	75.000	55.000	20.000
732905	65.000	55.000	10.000
730406	70.000	50.000	20.000
731106	62.000	50.000	12.000

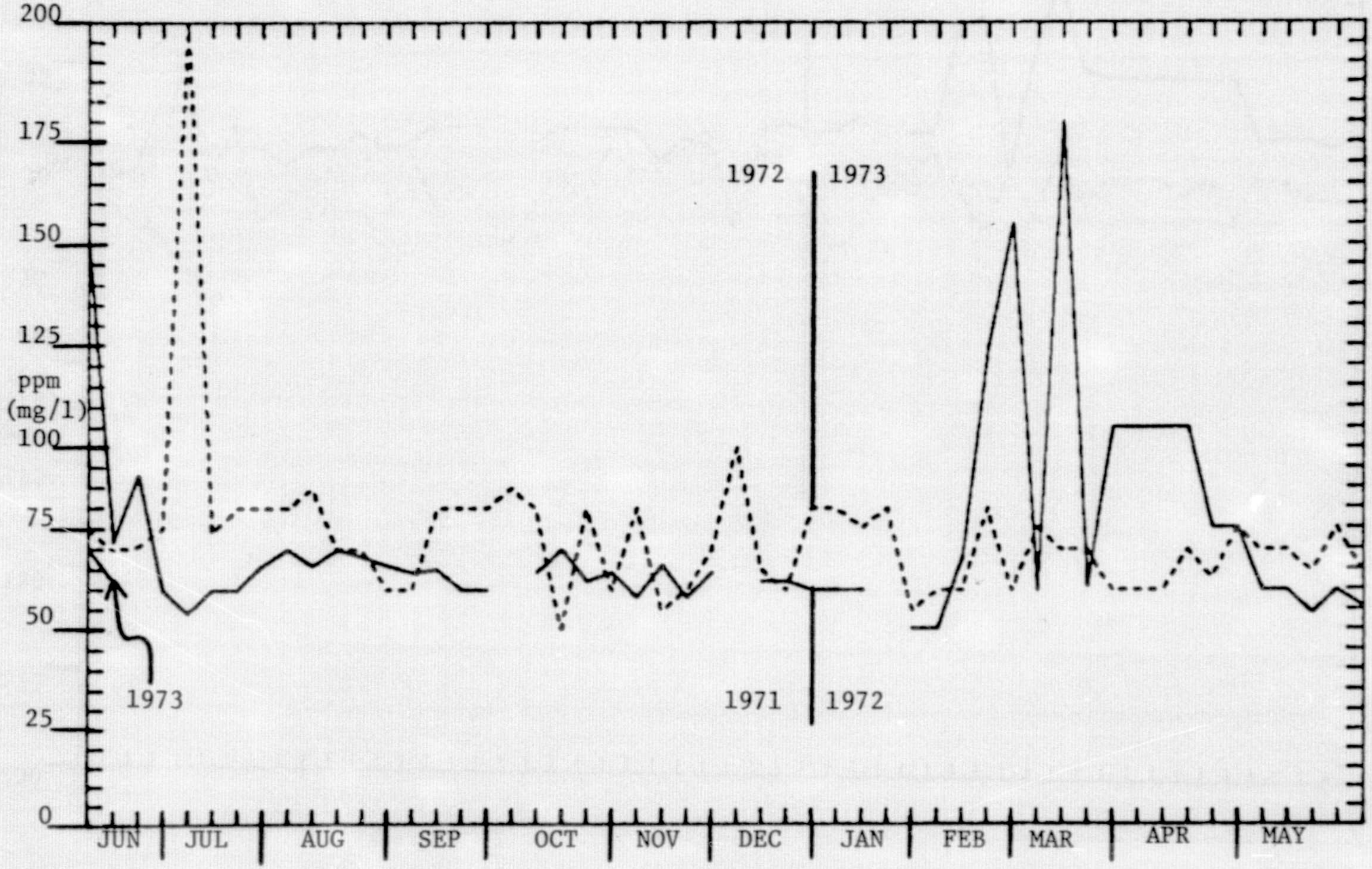

FIGURE 74. WEEKLY HARDNESS OF MIRROR LAKE FROM JUNE 7, 1971 TO JUNE 11, 1973.

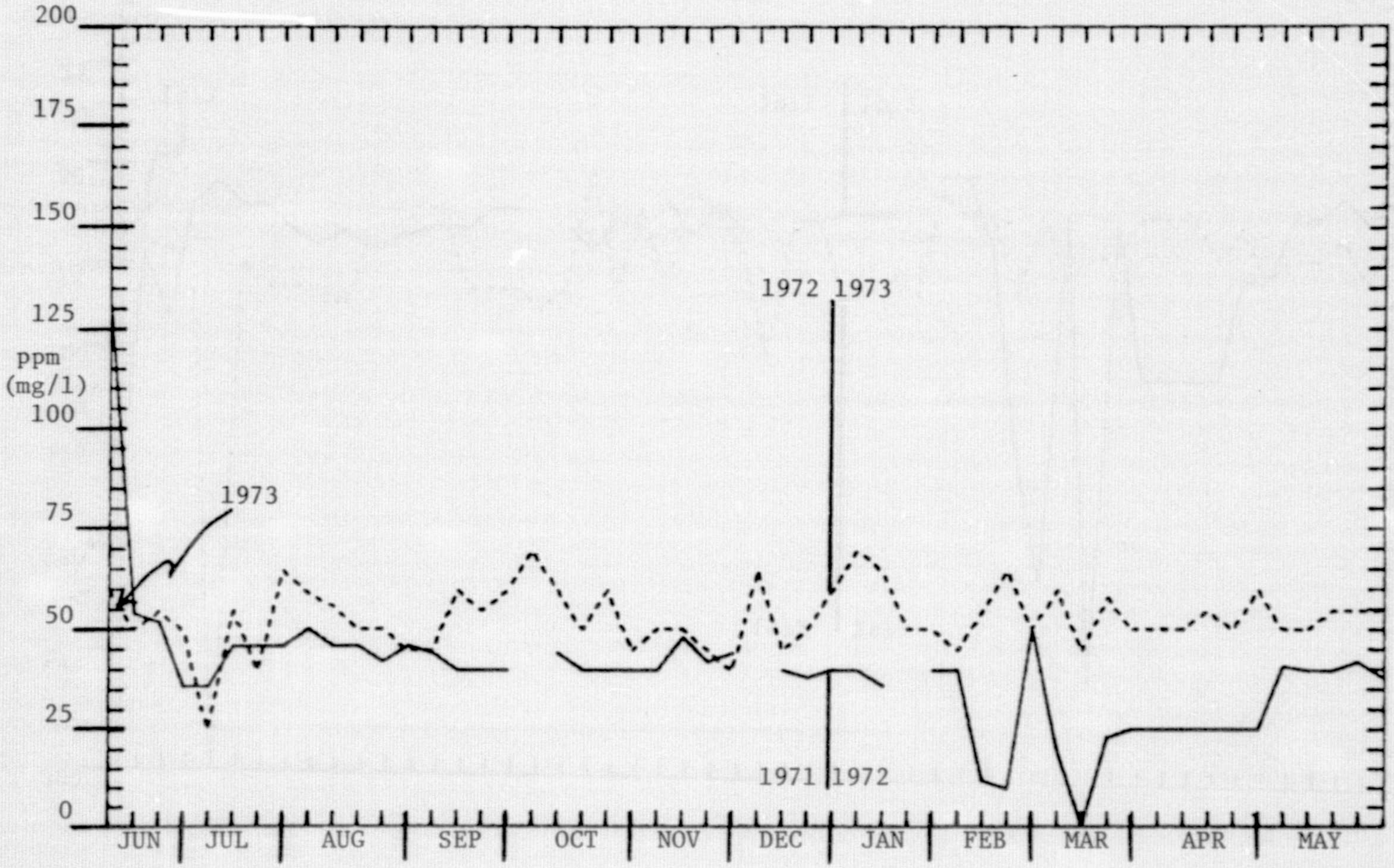

FIGURE 75. WEEKLY CALCIUM OF MIRROR LAKE FROM JUNE 7, 1971 TO JUNE 11, 1973.

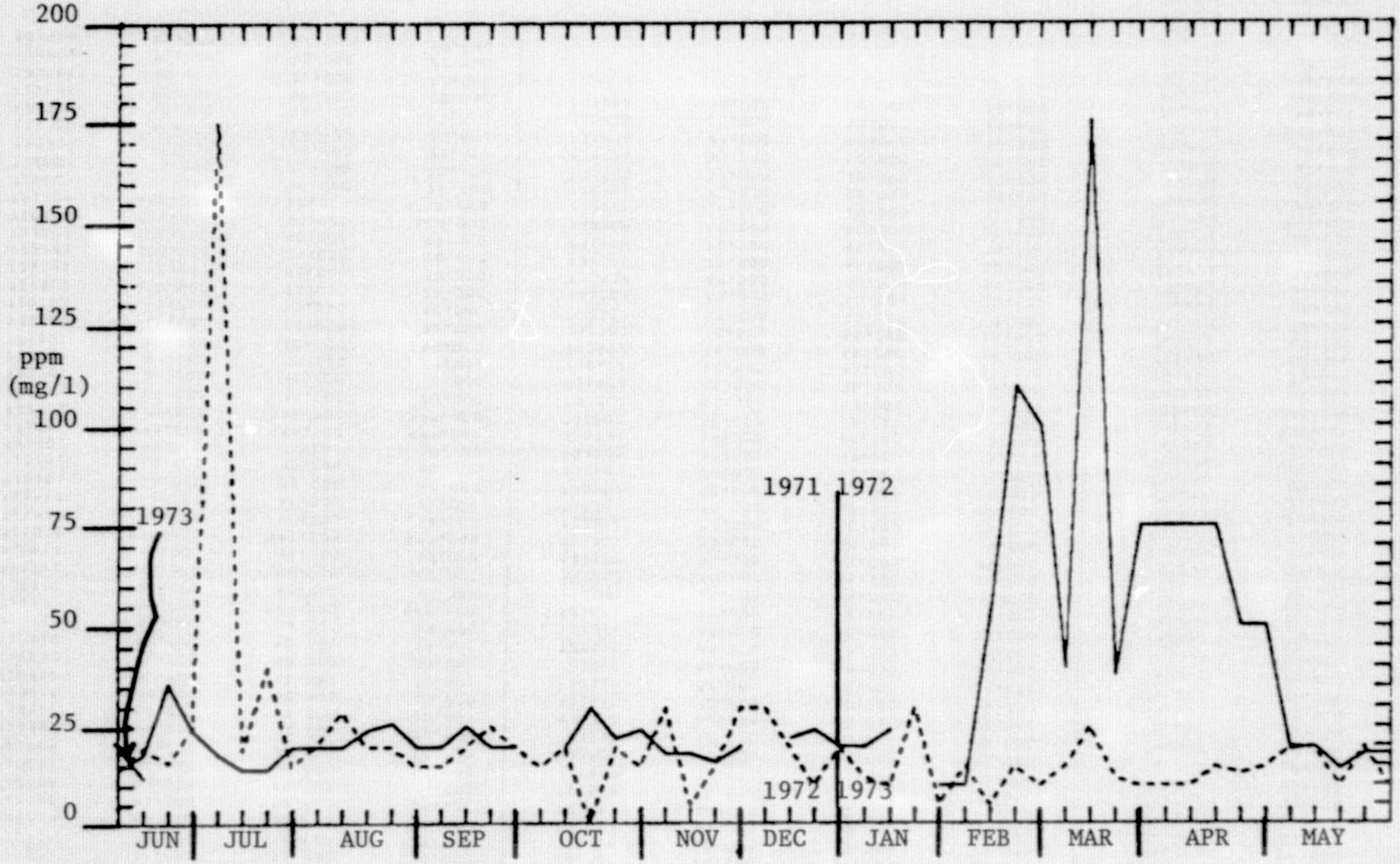

FIGURE 76. WEEKLY MAGNESIUM OF MIRROR LAKE FROM JUNE 7, 1971 TO JUNE 11, 1973.

WHITESBURG BOAT DOCK

DATE	HARDNESS	CALCIUM	MAGNESIUM
710606	999.000	999.000	999.000
711106	122.000	44.000	78.000
711806	98.000	62.000	36.000
712506	68.000	48.000	24.000
710207	64.000	46.000	14.000
710907	70.000	46.000	14.000
711607	70.000	48.000	12.000
712307	66.000	50.000	16.000
713007	70.000	50.000	20.000
710608	70.000	46.000	24.000
711308	66.000	48.000	18.000
712008	66.000	42.000	24.000
712708	60.[illegible]0	46.000	14.000
710209	60.000	40.000	20.000
711009	60.000	40.000	20.000
711709	62.000	42.000	20.000
712409	60.000	38.000	22.000
710110	60.000	40.000	20.000
710810	60.000	40.000	20.000
711510	60.000	40.000	20.000
712210	64.000	40.000	24.000
712910	66.000	38.000	28.000
710311	999.000	999.000	999.000
710811	64.000	48.000	16.000
711211	60.000	48.000	12.000
710612	66.000	36.000	30.000
711012	999.000	999.000	999.000
711412	66.000	50.000	16.000
712412	66.000	44.000	22.000
720101	50.000	38.000	12.000
720301	52.000	30.000	22.000
721101	54.000	34.000	20.000
721801	999.000	999.000	999.000
722301	999.000	999.000	999.000
722601	54.000	34.000	20.000
720202	50.000	40.000	10.000
720902	64.000	10.000	54.000
721602	60.000	10.000	50.000
722402	125.000	50.000	75.000
720103	50.000	10.000	40.000
720803	150.000	25.000	125.000
721703	70.000	50.000	20.000
722203	100.000	25.000	75.000
723003	125.000	50.000	75.000
720604	125.000	25.000	100.000
721304	100.000	25.000	75.000
722004	50.000	25.000	25.000
722604	75.000	25.000	50.000
720305	60.000	38.000	22.000
721005	64.000	44.000	20.000
721705	60.000	36.000	24.000
722505	50.000	30.000	20.000
722905	60.000	38.000	22.000
720806	71.000	50.000	21.000
721506	61.000	51.000	30.000

DATE	HARDNESS	CALCIUM	MAGNESIUM
722206	80.000	56.000	24.000
722806	77.000	65.000	12.000
720407	100.000	25.000	75.000
721307	71.000	36.000	35.000
722007	80.000	56.000	24.000
722607	70.000	60.000	10.000
720308	85.000	65.000	25.000
721008	65.000	55.000	10.000
721708	70.000	15.000	55.000
722408	60.000	45.000	15.000
723108	65.000	40.000	25.000
720709	60.000	45.000	15.000
721509	75.000	52.000	23.000
721809	70.000	50.000	20.000
722509	70.000	55.000	15.000
720210	80.000	60.000	20.000
720910	82.000	60.000	22.000
721610	70.000	45.000	25.000
722310	82.000	55.000	27.000
723010	65.000	45.000	20.000
720611	85.000	65.000	20.000
721311	65.000	50.000	15.000
722011	70.000	55.000	15.000
722711	65.000	55.000	10.000
720412	90.000	65.000	25.000
721112	80.000	55.000	25.000
721712	55.000	45.000	10.000
722612	80.000	60.000	20.000
730101	90.000	68.000	22.000
730901	80.000	62.000	18.000
731501	60.000	60.000	.000
732201	60.000	45.000	15.000
730202	65.000	60.000	5.000
730502	55.000	55.000	.000
731202	80.000	53.000	27.000
731902	55.000	50.000	5.000
732602	90.000	55.000	35.000
730503	70.000	55.000	15.000
731203	70.000	55.000	15.000
732303	59.000	50.000	9.000
733003	65.000	40.000	25.000
730404	64.000	50.000	14.000
731104	75.000	65.000	10.000
731604	80.000	65.000	15.000
732304	60.000	50.000	10.000
733004	75.000	60.000	15.000
730705	70.000	50.000	20.000
731405	50.000	30.000	20.000
732205	80.000	50.000	30.000
732905	60.000	60.000	10.000
730406	60.000	50.000	10.000
731106	55.000	40.000	15.000

WHITESBURG BOAT DOCK

DATE	HARDNESS	CALCIUM	MAGNESIUM
742603	999.000	999.000	999.000
740204	75.000	55.000	20.000
740904	999.000	999.000	999.000
741604	55.000	40.000	15.000
742304	60.000	40.000	20.000
743004	999.000	999.000	999.000
740605	70.000	55.000	15.000
741305	78.000	48.000	30.000
742005	70.000	45.000	25.000
742705	60.000	30.000	30.000
740406	60.000	35.000	25.000
741106	64.000	44.000	20.000
741606	58.000	45.000	10.000
742506	60.000	40.000	20.000
740207	60.000	12.000	12.000
740907	60.000	45.000	15.000
741607	60.000	35.000	25.000
742307	60.000	40.000	20.000
743007	50.000	35.000	15.000
740608	70.000	45.000	25.000
741308	60.000	40.000	20.000
742208	60.000	40.000	20.000
742708	60.000	40.000	20.000
740409	60.000	40.000	20.000
741009	70.000	45.000	25.000
741709	68.000	50.000	18.000
742409	70.000	48.000	22.000
740110	70.000	48.000	22.000
740810	70.000	50.000	20.000
741510	71.000	50.000	21.000
742410	75.000	55.000	20.000
743010	999.000	999.000	999.000
740511	70.000	45.000	25.000
741211	999.000	999.000	999.000
742011	66.000	42.000	26.000
742611	60.000	40.000	20.000
740712	70.000	55.000	15.000
741112	60.000	50.000	10.000
741712	60.000	45.000	15.000
742312	70.000	45.000	25.000
750201	65.000	55.000	10.000
750801	68.000	52.000	16.000
751401	70.000	50.000	20.000
752101	73.000	47.000	26.000
752801	60.000	50.000	10.000
750402	999.000	999.000	999.000
751402	75.000	45.000	30.000
752002	65.000	55.000	10.000
752502	60.000	50.000	10.000
750403	65.000	10.000	55.000
751103	999.000	999.000	999.000
751803	48.000	.000	48.000
752503	40.000	30.000	10.000
750104	50.000	40.000	40.000
750704	51.000	42.000	9.000
751504	51.000	48.000	3.000
752204	60.000	50.000	10.000
750705	55.000	50.000	5.000
750805	58.000	47.000	9.000
751605	62.000	45.000	17.000
752405	53.000	41.000	12.000
752805	53.000	50.000	3.000

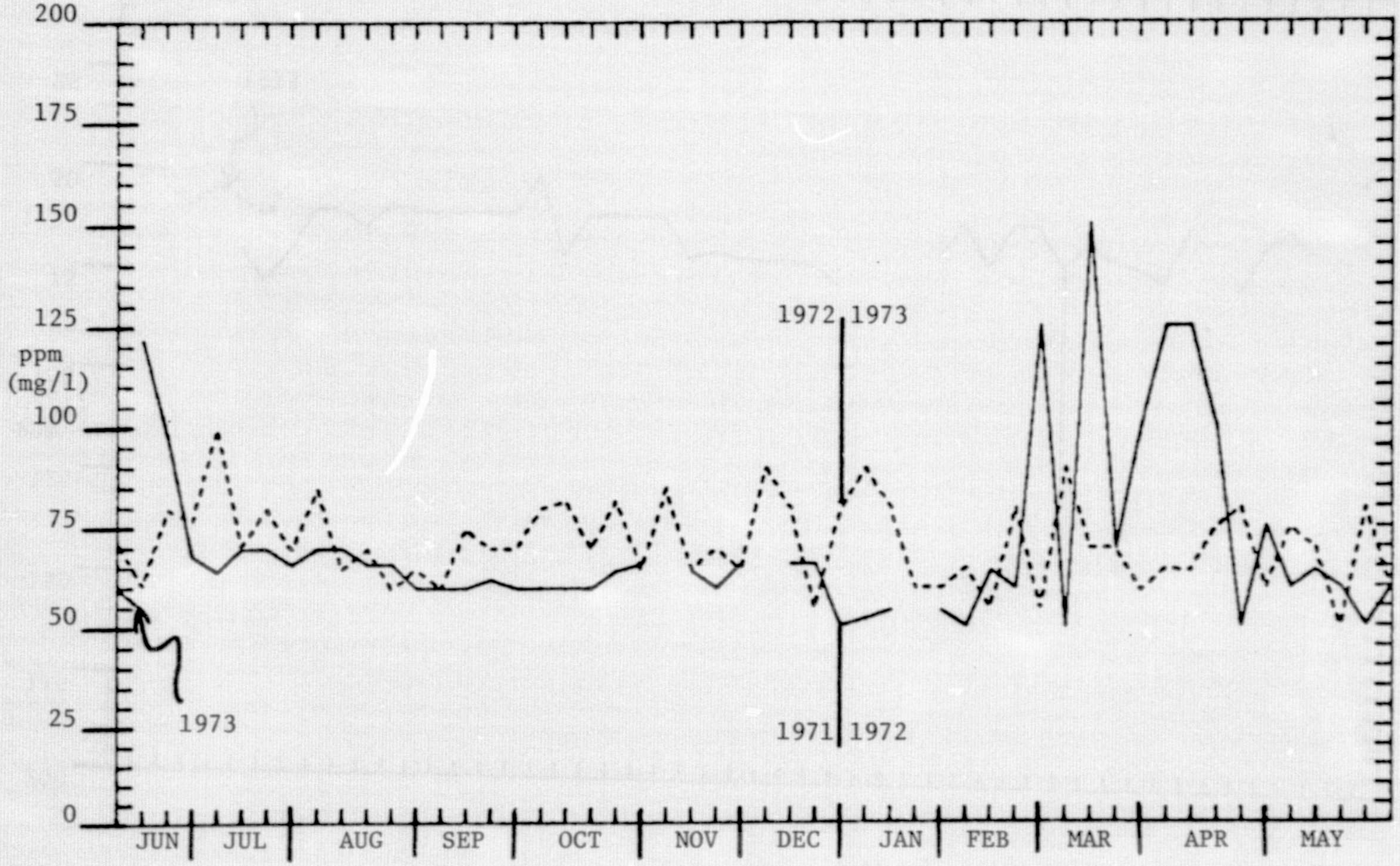

FIGURE 77. WEEKLY HARDNESS OF WHITESBURG FROM JUNE 7, 1971 TO JUNE 11, 1973.

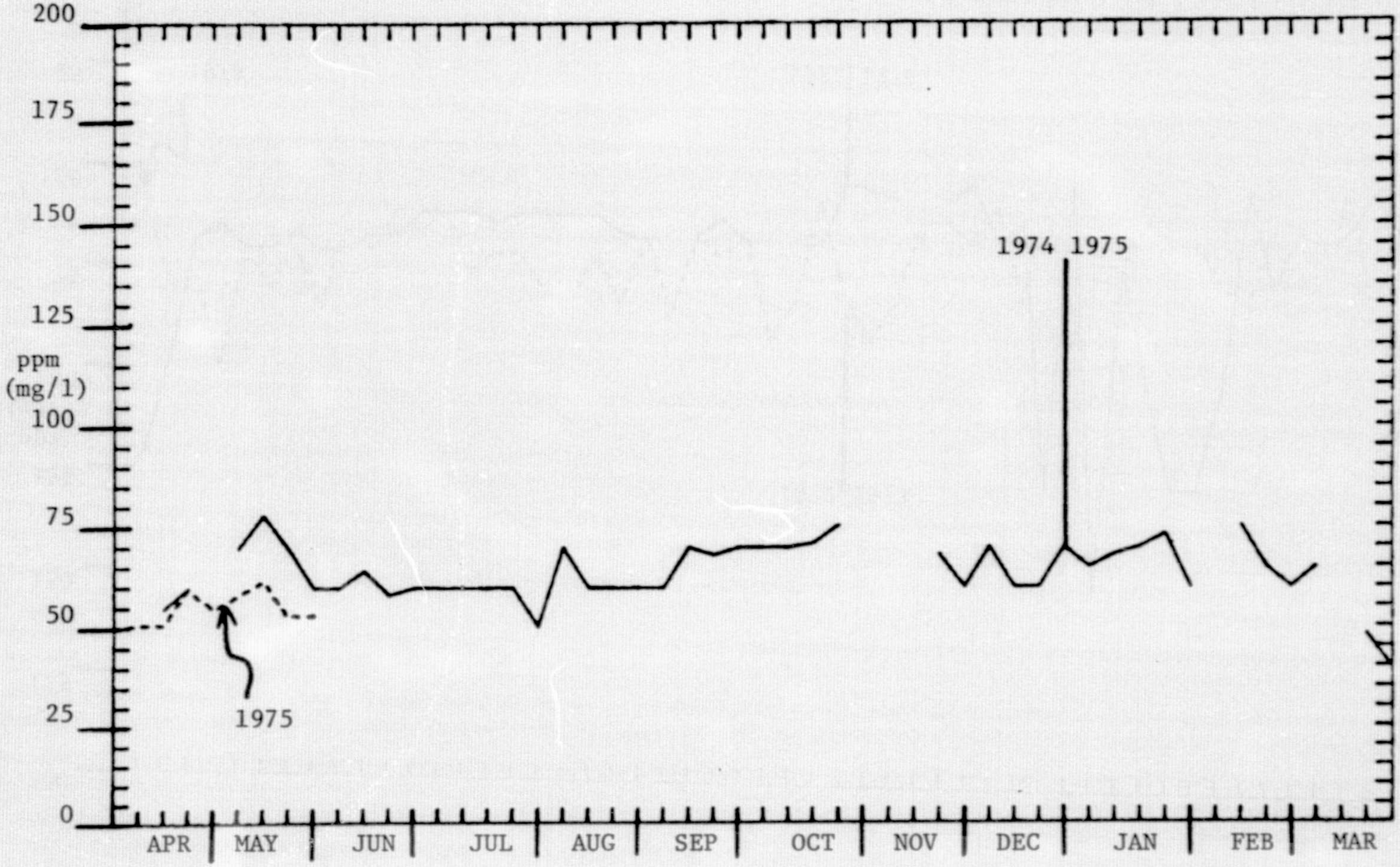

FIGURE 78. WEEKLY HARDNESS OF WHITESBURG FROM MARCH 26, 1974 TO MAY 28, 1975.

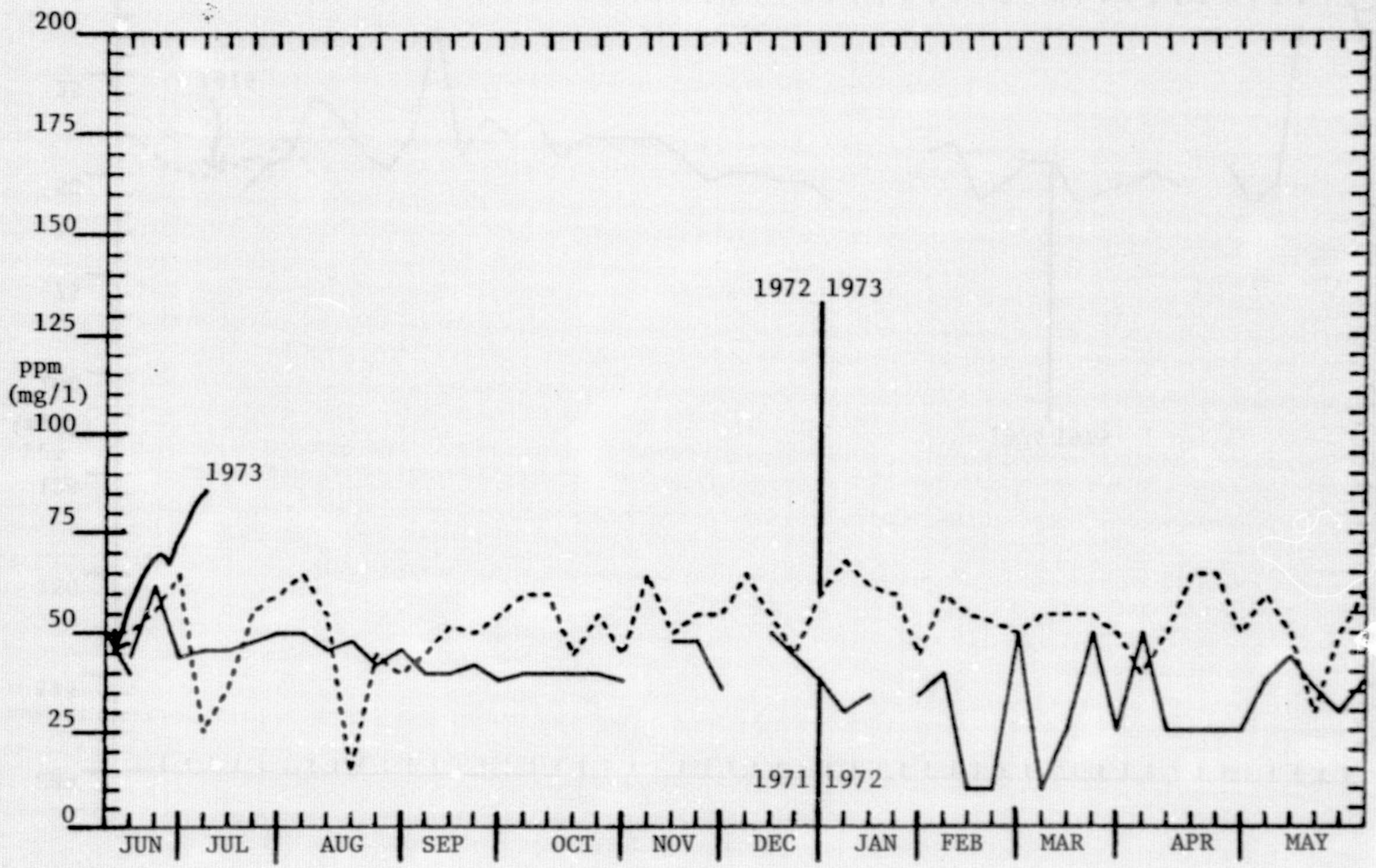

FIGURE 79. WEEKLY CALCIUM OF WHITESBURG FROM JUNE 7, 1971 TO JUNE 11, 1973.

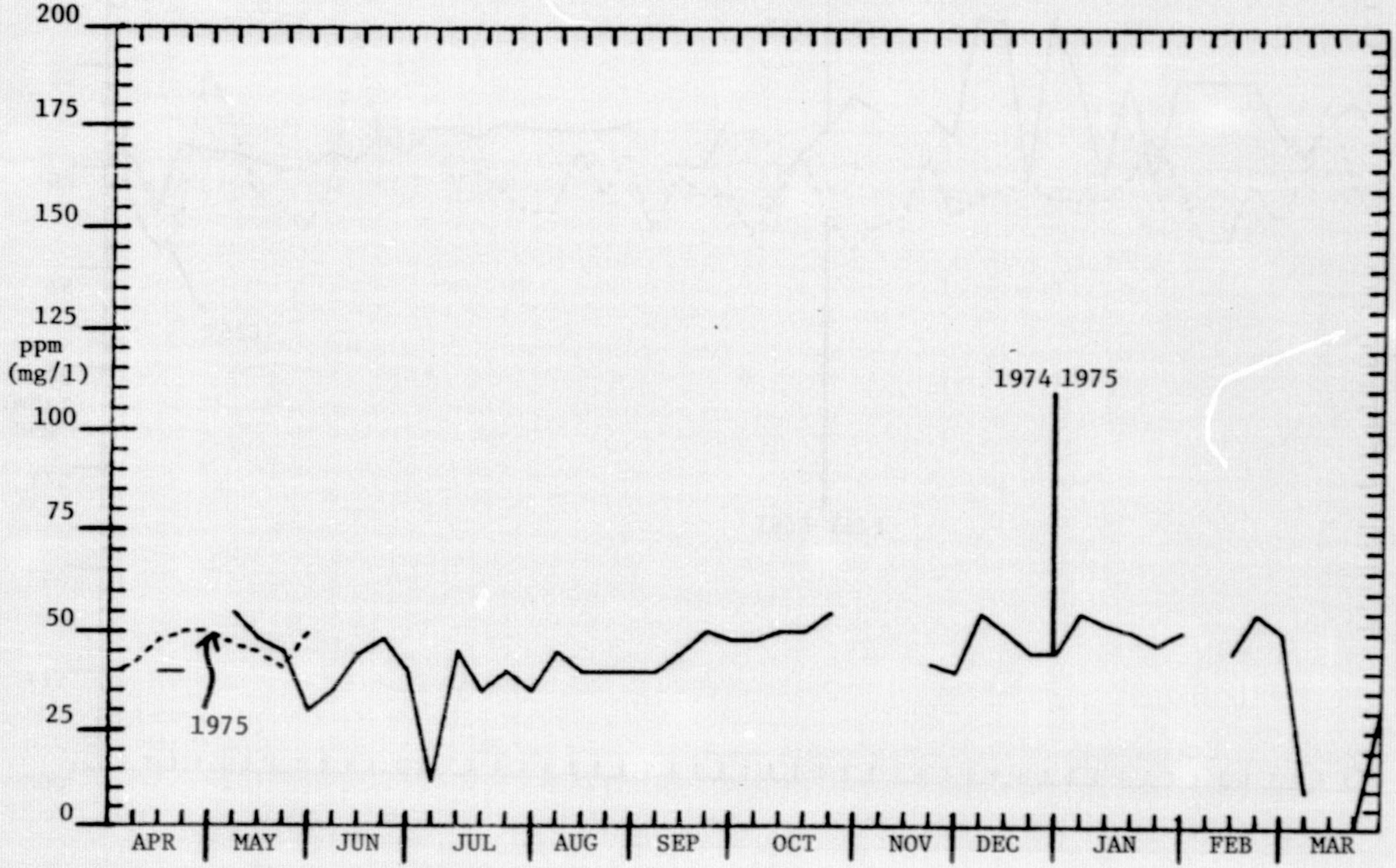

FIGURE 80. WEEKLY CALCIUM OF WHITESBURG FROM MARCH 26, 1974 TO MAY 28, 1975

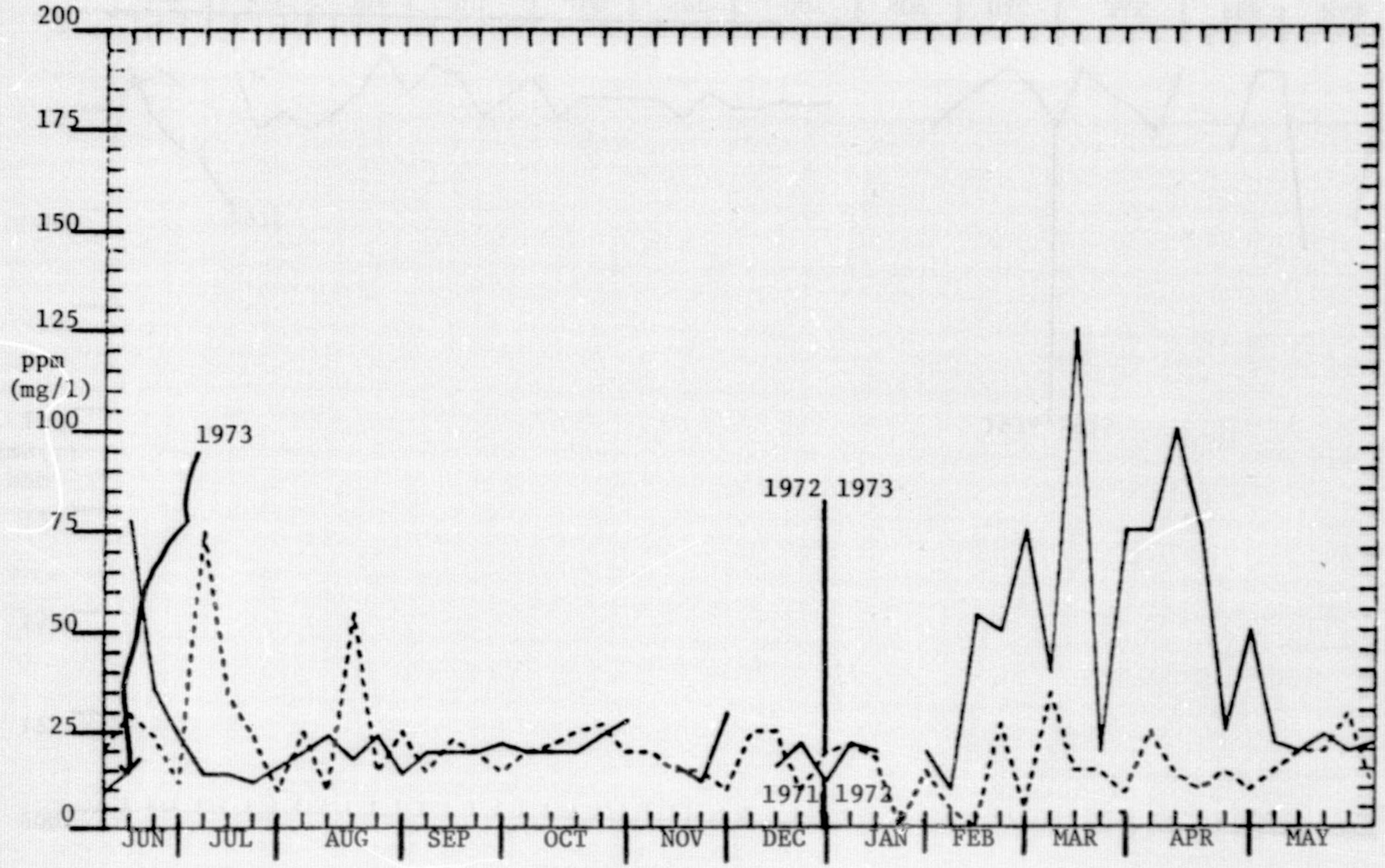

FIGURE 81. WEEKLY MAGNESIUM OF WHITESBURG FROM JUNE 7, 1971 TO JUNE 11, 1973.

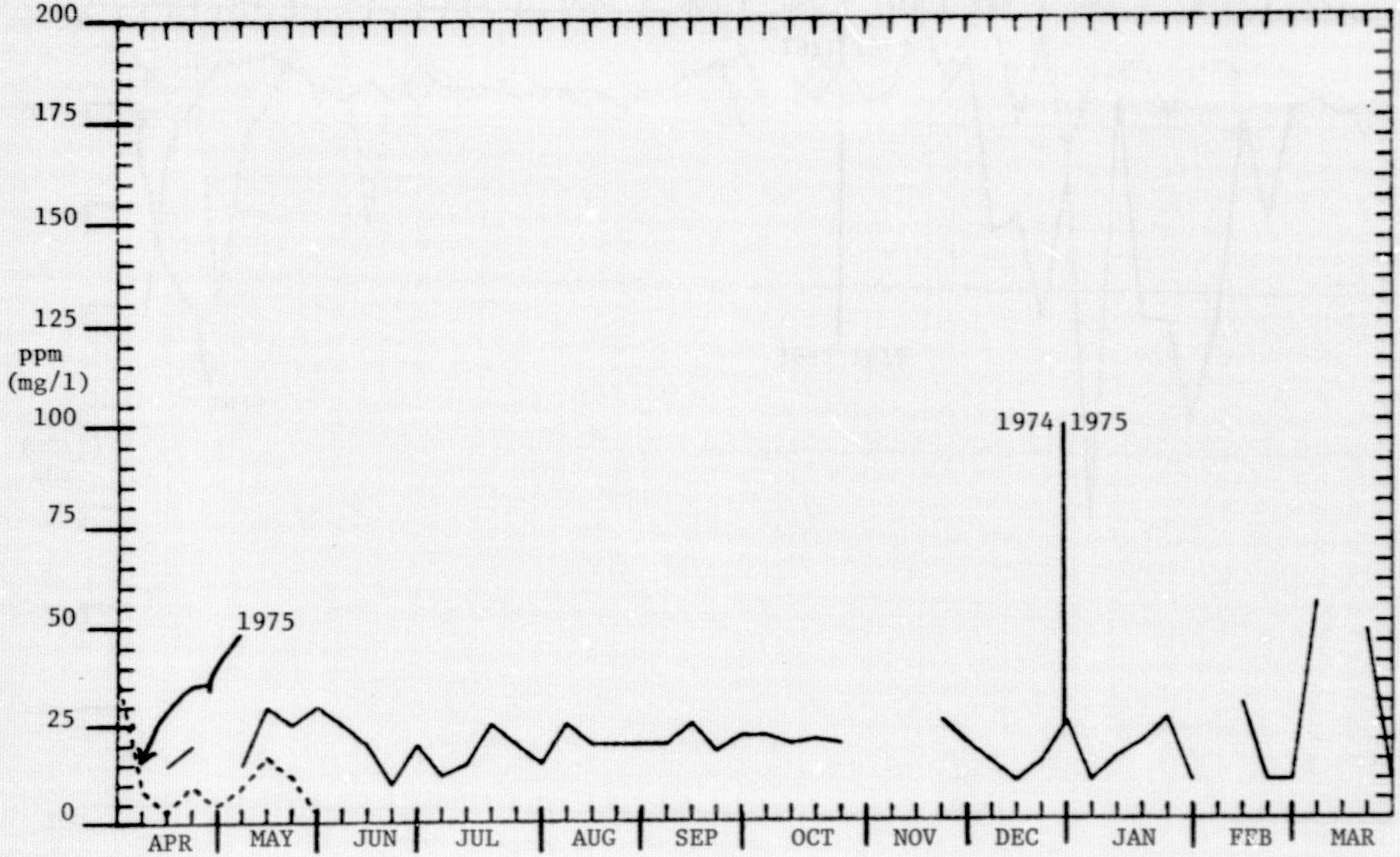

FIGURE 82. WEEKLY MAGNESIUM OF WHITESBURG FROM MARCH 26, 1974 TO MAY 28, 1975.

WHEELER-DECATUR

DATE	HARDNESS	CALCIUM	MAGNESIUM
710606	999.000	999.000	999.000
710906	60.000	40.000	20.000
711606	54.000	32.000	22.000
712306	100.000	80.000	20.000
713006	60.000	44.000	16.000
710707	60.000	30.000	30.000
711907	70.000	46.000	24.000
712107	70.000	46.000	24.000
712807	70.000	44.000	26.000
710408	70.000	44.000	26.000
711108	70.000	46.000	24.000
711808	70.000	46.000	24.000
712508	60.000	40.000	20.000
710109	64.000	44.000	20.000
710809	60.000	42.000	18.000
711709	60.000	40.000	20.000
712309	60.000	40.000	20.000
712909	68.000	46.000	22.000
710610	60.000	40.000	20.000
711310	60.000	40.000	20.000
712010	60.000	40.000	20.000
712710	60.000	40.000	20.000
710311	70.000	40.000	30.000
711011	60.000	42.000	18.000
711711	60.000	44.000	16.000
710712	68.000	46.000	22.000
711012	999.000	999.000	999.000
711912	999.000	999.000	999.000
712912	64.000	42.000	22.000
713112	62.000	40.000	22.000
720901	54.000	36.000	18.000
721201	50.000	32.000	18.000
721801	50.000	34.000	16.000
722401	40.000	36.000	4.000
723101	50.000	40.000	10.000
720202	999.000	999.000	999.000
720902	125.000	34.000	91.000
721902	60.000	20.000	30.000
722202	60.000	10.000	50.000
722802	125.000	25.000	100.000
720603	50.000	10.000	40.000
721303	66.000	36.000	30.000
722003	150.000	150.000	.000
722803	100.000	25.000	75.000
720304	100.000	50.000	50.000
721304	75.000	25.000	50.000
721704	75.000	25.000	50.000
722404	75.000	25.000	50.000
720205	60.000	40.000	20.000
720805	50.000	38.000	12.000
721505	60.000	40.000	20.000
722405	60.000	38.000	12.000
723105	56.000	40.000	16.000
720606	70.000	50.000	20.000
721306	71.000	51.000	20.000

DATE	HARDNESS	CALCIUM	MAGNESIUM
722006	65.000	60.000	5.000
722706	77.000	59.000	18.000
720607	150.000	25.000	125.000
721207	60.000	50.000	10.000
721807	70.000	50.000	20.000
722507	70.000	60.000	10.000
720108	65.000	50.000	15.000
720808	75.000	60.000	15.000
721508	80.000	65.000	15.000
722208	60.000	50.000	10.000
722908	55.000	45.000	10.000
720509	60.000	45.000	15.000
721309	71.000	51.000	20.000
722009	80.000	60.000	20.000
722709	80.000	60.000	20.000
720410	82.000	60.000	22.000
721110	80.000	60.000	20.000
722010	65.000	50.000	15.000
722510	80.000	70.000	10.000
720311	60.000	45.000	15.000
721011	55.000	50.000	5.000
721511	60.000	50.000	10.000
722211	65.000	55.000	10.000
722911	90.000	60.000	30.000
720612	60.000	50.000	10.000
721312	80.000	60.000	20.000
722112	55.000	40.000	15.000
722912	70.000	50.000	20.000
730501	75.000	60.000	15.000
731001	60.000	45.000	15.000
731901	65.000	55.000	10.000
732901	999.000	999.000	999.000
733101	80.000	60.000	20.000
730802	60.000	45.000	15.000
731602	55.000	40.000	15.000
732202	65.000	60.000	15.000
732602	999.000	999.000	999.000
730103	60.000	50.000	10.000
730903	71.000	55.000	16.000
732803	60.000	50.000	10.000
733003	999.000	999.000	999.000
730604	65.000	50.000	15.000
731304	65.000	50.000	15.000
731804	72.000	60.000	12.000
732704	15.000	55.000	20.000
730405	70.000	55.000	15.000
731105	65.000	48.000	17.000
731805	70.000	60.000	10.000
732505	70.000	55.000	15.000
730106	70.000	50.000	20.000
730806	60.000	40.000	20.000
731506	60.000	50.000	10.000

WHEELER-DECATUR

DATE	HARDNESS	CALCIUM	MAGNESIUM
742703	60.000	45.000	15.000
740304	999.000	999.000	999.000
741004	65.000	45.000	20.000
741704	60.000	45.000	15.000
742404	60.000	42.000	18.000
740105	65.000	48.000	17.000
740805	60.000	48.000	12.000
741505	999.000	999.000	999.000
742205	60.000	43.000	17.000
742905	65.000	50.000	15.000
740506	60.000	40.000	20.000
741206	55.000	50.000	5.000
741906	60.000	45.000	15.000
742606	60.000	52.000	8.000
740307	999.000	999.000	999.000
741007	60.000	42.000	18.000
741707	60.000	35.000	25.000
742407	70.000	40.000	30.000
743107	60.000	40.000	20.000
740708	55.000	40.000	15.000
741408	60.000	45.000	15.000
742108	65.000	40.000	25.000
742808	60.000	45.000	15.000
740409	70.000	40.000	30.000
741109	70.000	50.000	20.000
741809	60.000	48.000	12.000
742509	70.000	48.000	22.000
740210	60.000	50.000	10.000
740910	60.000	50.000	10.000
741610	60.000	50.000	10.000
742310	70.000	60.000	10.000
743010	200.000	160.000	40.000
740611	70.000	50.000	20.000
741311	65.000	40.000	25.000
742011	70.000	50.000	20.000
742711	65.000	45.000	20.000
740612	78.000	52.000	26.000
741112	68.000	52.000	16.000
741612	50.000	50.000	.000
742412	999.000	999.000	999.000
743112	70.000	45.000	25.000
750601	70.000	40.000	30.000
751501	55.000	45.000	10.000
752401	50.000	40.000	10.000
752901	60.000	45.000	15.000
750702	67.000	45.000	26.000
751202	60.000	50.000	10.000
751902	60.000	50.000	10.000
752502	75.000	50.000	25.000
750503	75.000	50.000	25.000
751203	999.990	999.000	999.000
751903	75.000	40.000	35.000
752603	52.000	20.000	32.000
750204	51.000	41.000	10.000
750904	50.000	40.000	10.000
751604	42.000	42.000	.000
752304	60.000	51.000	9.000
753004	70.000	60.000	10.000
750105	53.000	43.000	10.000
751405	75.000	50.000	25.000
752405	52.000	48.000	4.000
752605	52.000	51.000	1.000

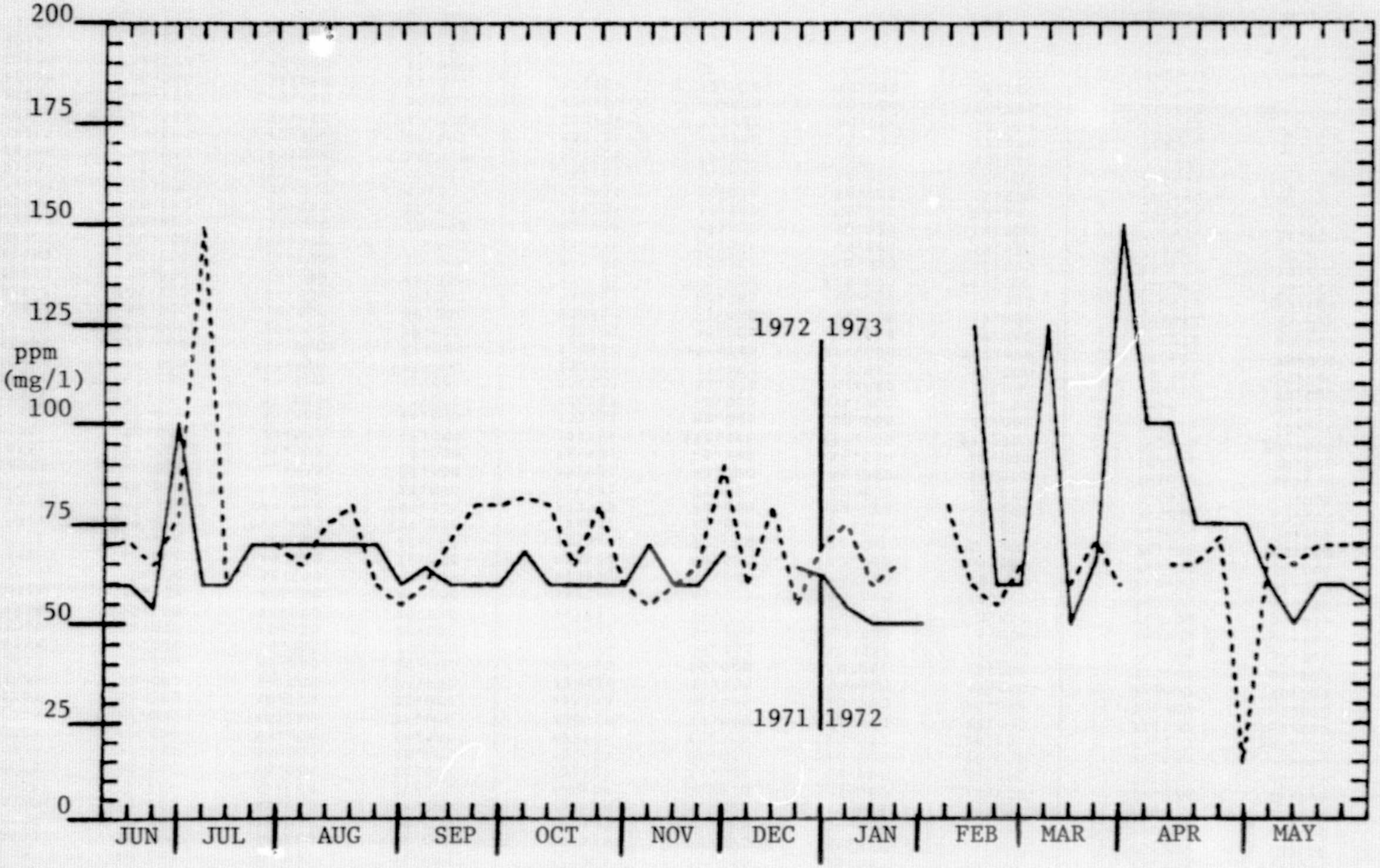

FIGURE 83. WEEKLY HARDNESS OF WHEELER FROM JUNE 7, 1971 TO JUNE 11, 1973.

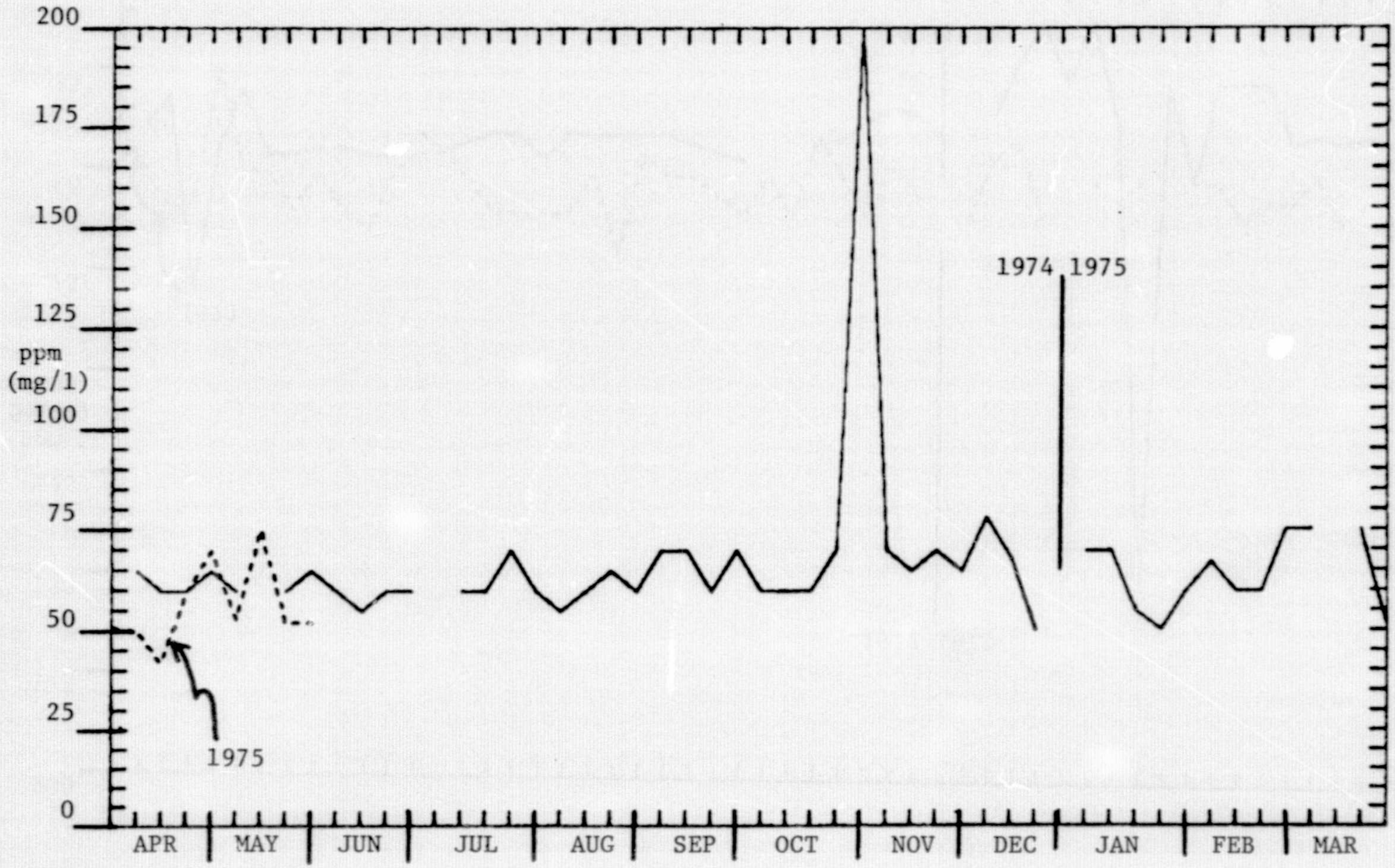

FIGURE 84. WEEKLY HARDNESS OF WHEELER FROM MARCH 27, 1974 TO MAY 28, 1975.

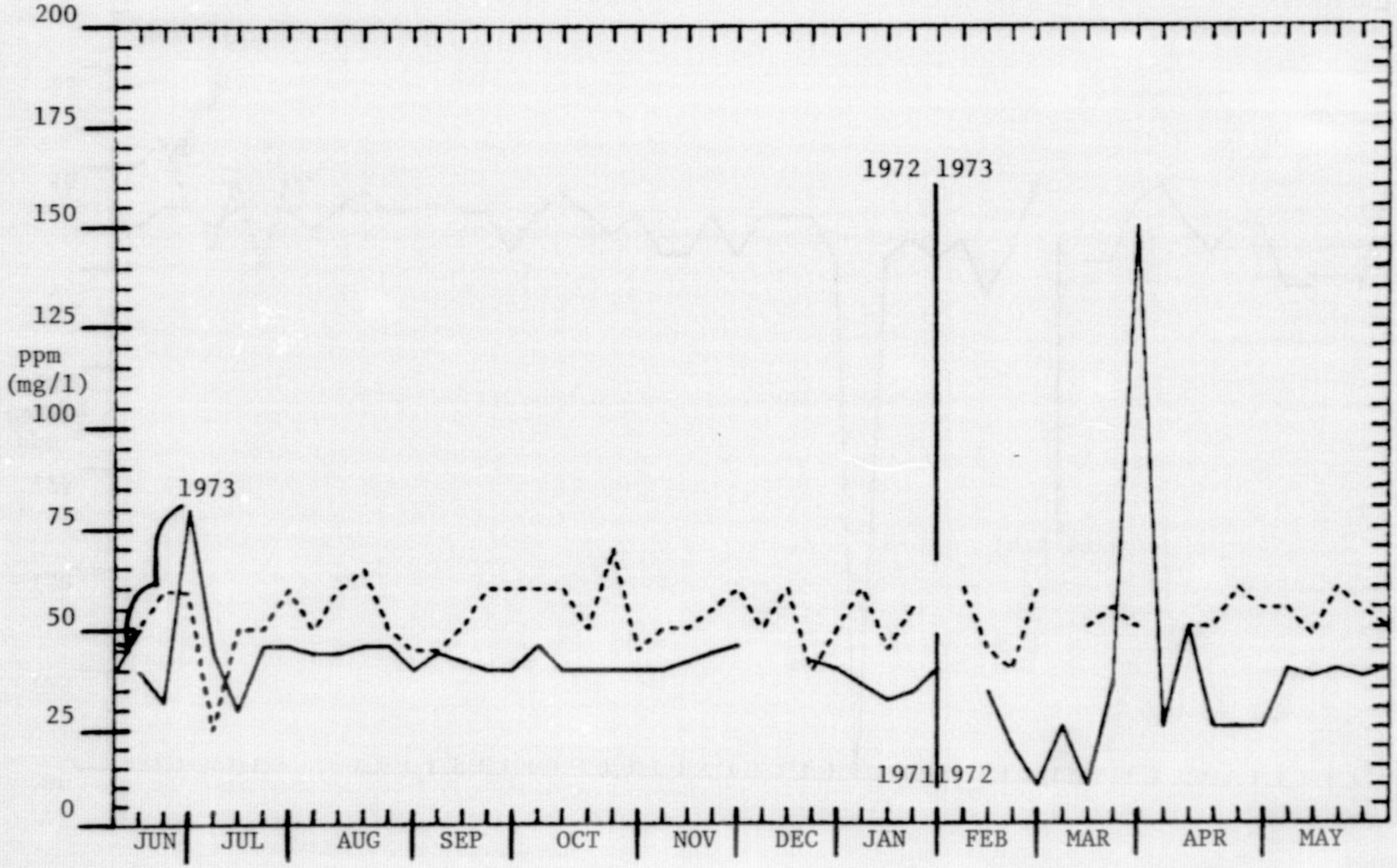

FIGURE 85. WEEKLY CALCIUM OF WHEELER FROM JUNE 7, 1971 to JUNE 11, 1973.

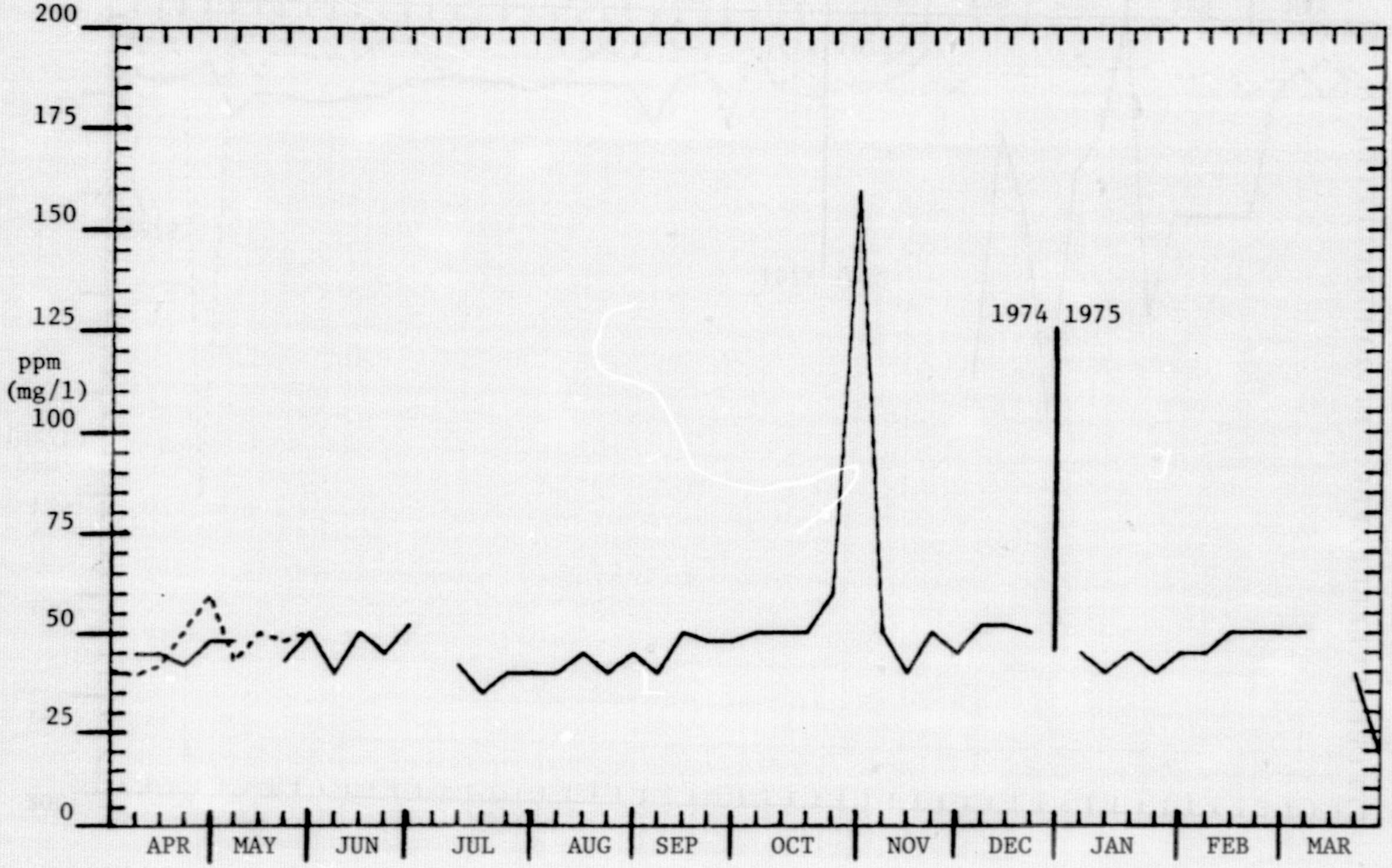

FIGURE 86. WEEKLY CALCIUM OF WHEELER FROM MARCH 26, 1974 TO MAY 28, 1975.

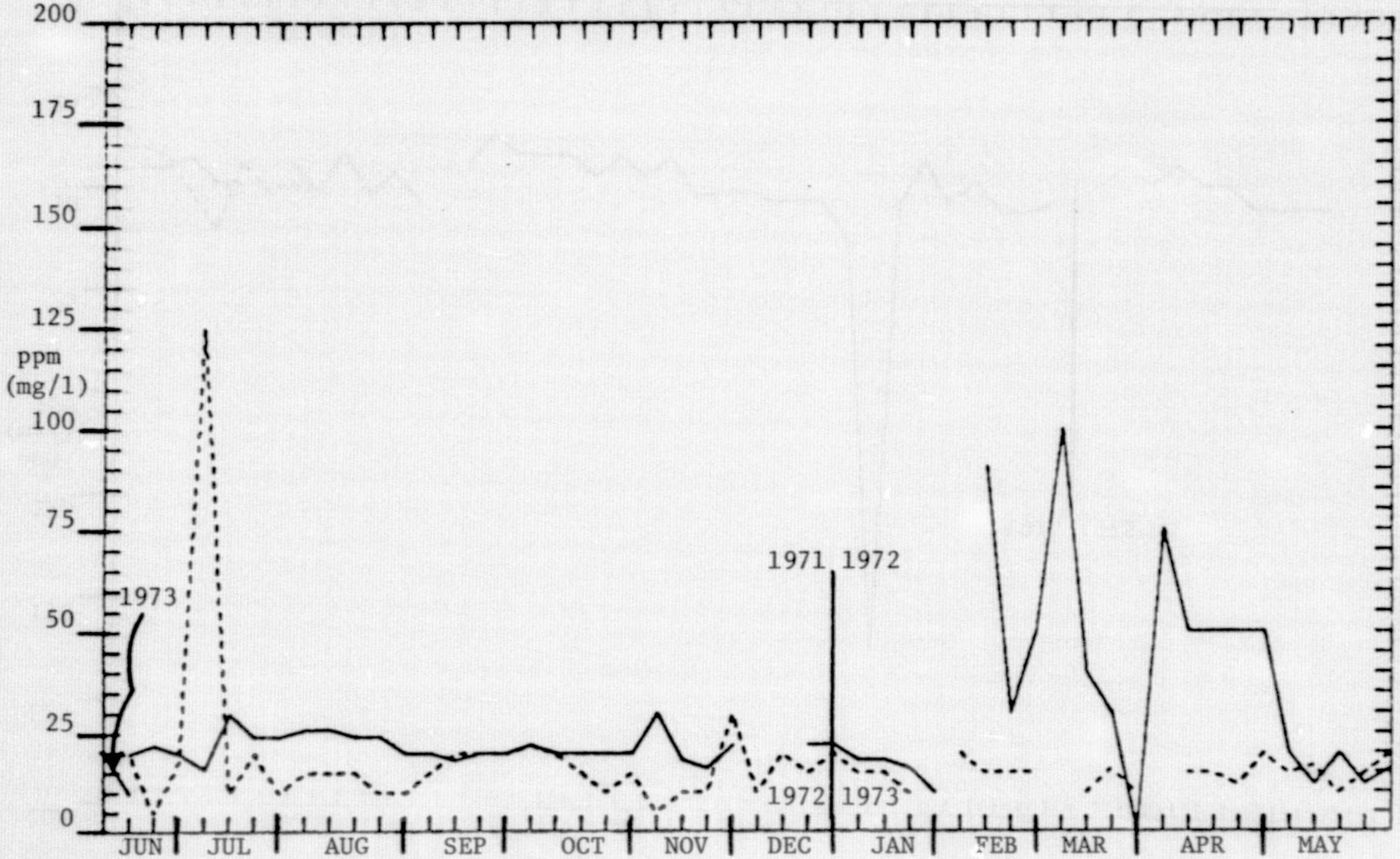

FIGURE 87. WEEKLY MAGNESIUM OF WHEELER FROM JUNE 7, 1971 TO JUNE 11, 1973.

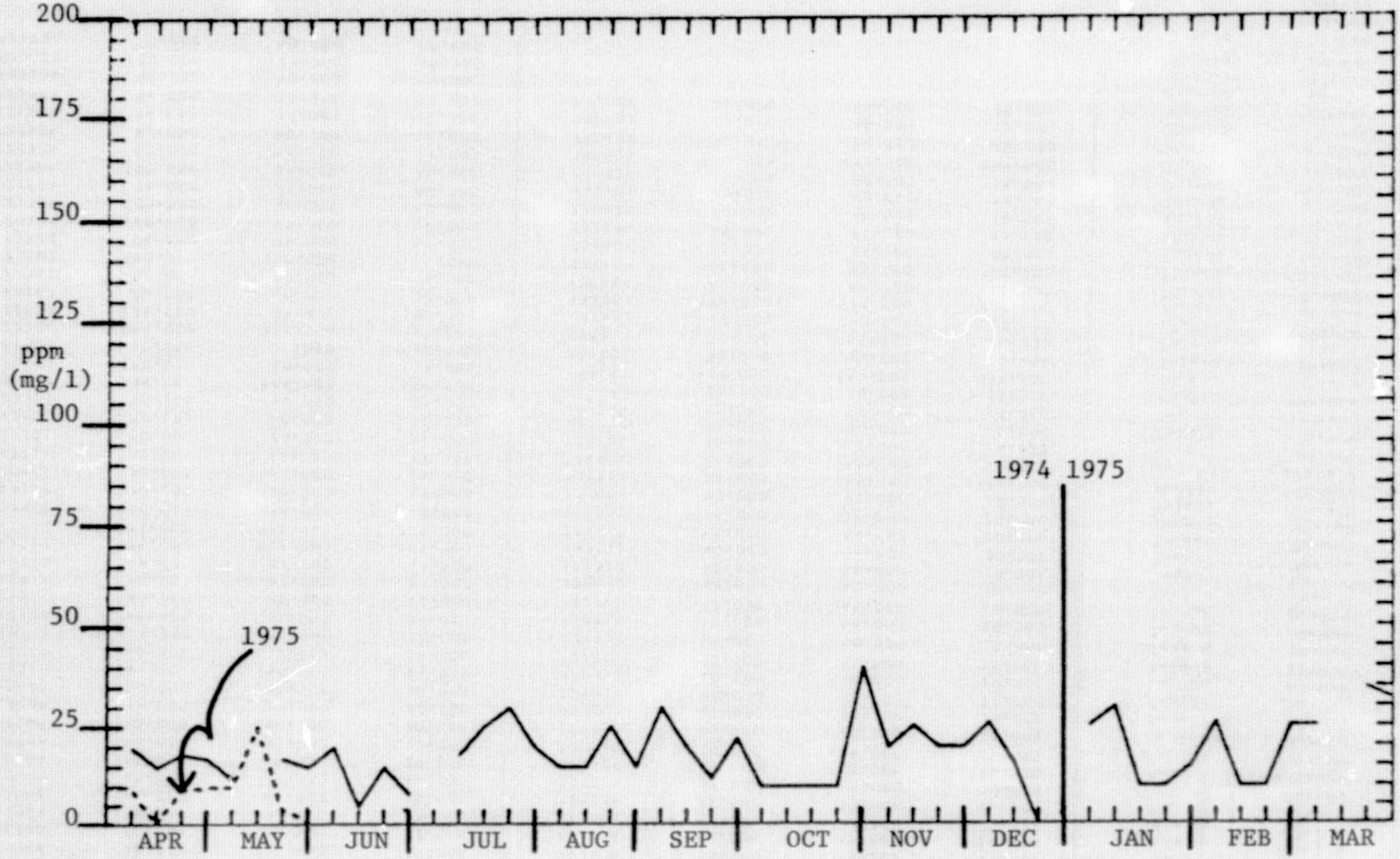

FIGURE 88. WEEKLY MAGNESIUM OF WHEELER FROM MARCH 26, 1974 TO MAY 28, 1975.

BROWNS FERRY

DATE	HARDNESS	CALCIUM	MAGNESIUM
710606	999.000	999.000	999.000
710906	120.000	54.000	66.000
711606	84.000	58.000	26.000
712306	80.000	68.000	12.000
713006	58.000	40.000	18.000
710707	60.000	40.000	20.000
711407	70.000	46.000	24.000
712107	60.000	46.000	14.000
712807	66.000	48.000	18.000
710408	70.000	46.000	24.000
711108	70.000	48.000	22.000
711808	70.000	46.000	24.000
712508	66.000	46.000	20.000
710109	60.000	44.000	16.000
710809	60.000	40.000	20.000
711709	58.000	40.000	18.000
712409	60.000	40.000	20.000
712909	64.000	44.000	20.000
710610	60.000	40.000	20.000
711310	64.000	40.000	24.000
712010	60.000	38.000	22.000
712710	64.000	32.000	32.000
710311	60.000	36.000	24.000
711011	60.000	40.000	20.000
711711	66.000	42.000	24.000
710712	46.000	32.000	14.000
711012	999.000	999.000	999.000
711412	999.000	999.000	999.000
712412	30.000	20.000	10.000
713112	30.000	20.000	10.000
720401	30.000	14.000	16.000
721201	40.000	25.000	15.000
721801	40.000	28.000	12.000
722401	40.000	30.000	10.000
723101	40.000	16.000	34.000
720202	999.000	999.000	999.000
720902	125.000	10.000	115.000
721402	60.000	.000	60.000
722202	999.000	999.000	999.000
722802	125.000	25.000	100.000
720603	40.000	10.000	30.000
721303	56.000	50.000	6.000
722003	150.000	150.000	.000
722803	75.000	25.000	50.000
720304	125.000	25.000	100.000
721304	100.000	50.000	50.000
721704	75.000	25.000	50.000
722404	100.000	25.000	75.000
720205	60.000	46.000	14.000
720805	56.000	40.000	16.000
721505	56.000	44.000	12.000
722405	58.000	36.000	12.000
723105	54.000	40.000	14.000
720606	130.000	70.000	60.000
721306	70.000	50.000	20.000

DATE	HARDNESS	CALCIUM	MAGNESIUM
722006	75.000	60.000	15.000
722706	71.000	51.000	20.000
720607	125.000	25.000	100.000
721207	60.000	45.000	15.000
721807	60.000	45.000	15.000
722507	80.000	60.000	20.000
720108	72.000	55.000	17.000
720808	80.000	50.000	30.000
721508	75.000	60.000	15.000
722208	50.000	40.000	10.000
722908	55.000	35.000	20.000
720509	60.000	40.000	20.000
721309	72.000	50.000	22.000
722009	85.000	55.000	30.000
722709	70.000	55.000	15.000
720410	80.000	65.000	15.000
721110	85.000	62.000	23.000
722010	65.000	50.000	15.000
722510	80.000	55.000	25.000
720311	60.000	40.000	20.000
721011	70.000	55.000	15.000
721511	55.000	50.000	5.000
722211	70.000	50.000	20.000
722911	75.000	65.000	10.000
720612	60.000	50.000	10.000
721312	70.000	50.000	20.000
722112	60.000	35.000	25.000
722912	55.000	45.000	10.000
730501	70.000	50.000	20.000
731001	50.000	40.000	10.000
731901	65.000	50.000	15.000
732401	50.000	40.000	10.000
733101	70.000	62.000	8.000
730802	55.000	50.000	5.000
731602	50.000	35.000	15.000
732202	75.000	60.000	15.000
732602	999.000	999.000	999.000
730103	50.000	45.000	5.000
730903	75.000	55.000	20.000
732803	60.000	40.000	20.000
733003	999.000	999.000	999.000
730604	60.000	45.000	15.000
731304	65.000	55.000	10.000
731804	75.000	55.000	20.000
732704	65.000	51.000	14.000
730405	70.000	60.000	10.000
731105	65.000	50.000	15.000
731805	65.000	50.000	15.000
732505	999.000	999.000	999.000
730106	70.000	50.000	20.000
730806	60.000	45.000	15.000
731506	65.000	45.000	20.000

BROWNS FERRY

DATE	HARDNESS	CALCIUM	MAGNESIUM
742703	65.000	50.000	15.000
740304	999.000	999.000	999.000
741004	65.000	45.000	20.000
741704	55.000	45.000	10.000
742404	58.000	40.000	18.000
740105	62.000	50.000	12.000
740805	55.000	40.000	15.000
741505	999.000	999.000	999.000
742205	70.000	49.000	21.000
742905	65.000	50.000	15.000
740506	55.000	45.000	10.000
741206	60.000	50.000	10.000
741906	62.000	50.000	12.000
742606	70.000	40.000	90.000
740307	999.000	999.000	999.000
741007	999.000	999.000	999.000
741707	65.000	35.000	30.000
742407	60.000	45.000	15.000
743107	60.000	30.000	30.000
740708	60.000	40.000	20.000
741408	60.000	40.000	20.000
742108	60.000	40.000	20.000
742808	65.000	45.000	20.000
740409	60.000	40.000	20.000
741109	70.000	50.000	20.000
741809	65.000	50.000	15.000
742509	70.000	55.000	15.000
740210	70.000	55.000	15.000
740910	55.000	45.000	10.000
741610	70.000	42.000	28.000
742310	70.000	48.000	12.000
743010	175.000	140.000	35.000
740611	60.000	45.000	15.000
741311	70.000	50.000	20.000
742011	999.000	999.000	999.000
742711	999.000	999.000	999.000
740612	70.000	55.000	15.000
741112	54.000	54.000	.000
741612	68.000	52.000	16.000
742412	999.000	999.000	999.000
743112	60.000	50.000	10.000
750601	70.000	42.000	28.000
751501	52.000	45.000	7.000
752401	60.000	45.000	15.000
752901	65.000	35.000	30.000
750702	60.000	50.000	10.000
751202	65.000	45.000	20.000
751902	55.000	40.000	15.000
752502	60.000	48.000	12.000
750503	81.000	50.000	31.000
751203	9.000	999.000	999.000
751903	999.000	999.000	999.000
752603	42.000	.000	42.000
750204	50.000	31.000	19.000
750904	48.000	32.000	16.000
751604	50.000	38.000	12.000
752304	50.000	45.000	5.000
753004	999.000	999.000	999.000
750105	55.000	48.000	7.000
751405	60.000	40.000	20.000
752405	50.000	45.000	5.000
752805	53.000	45.000	8.000

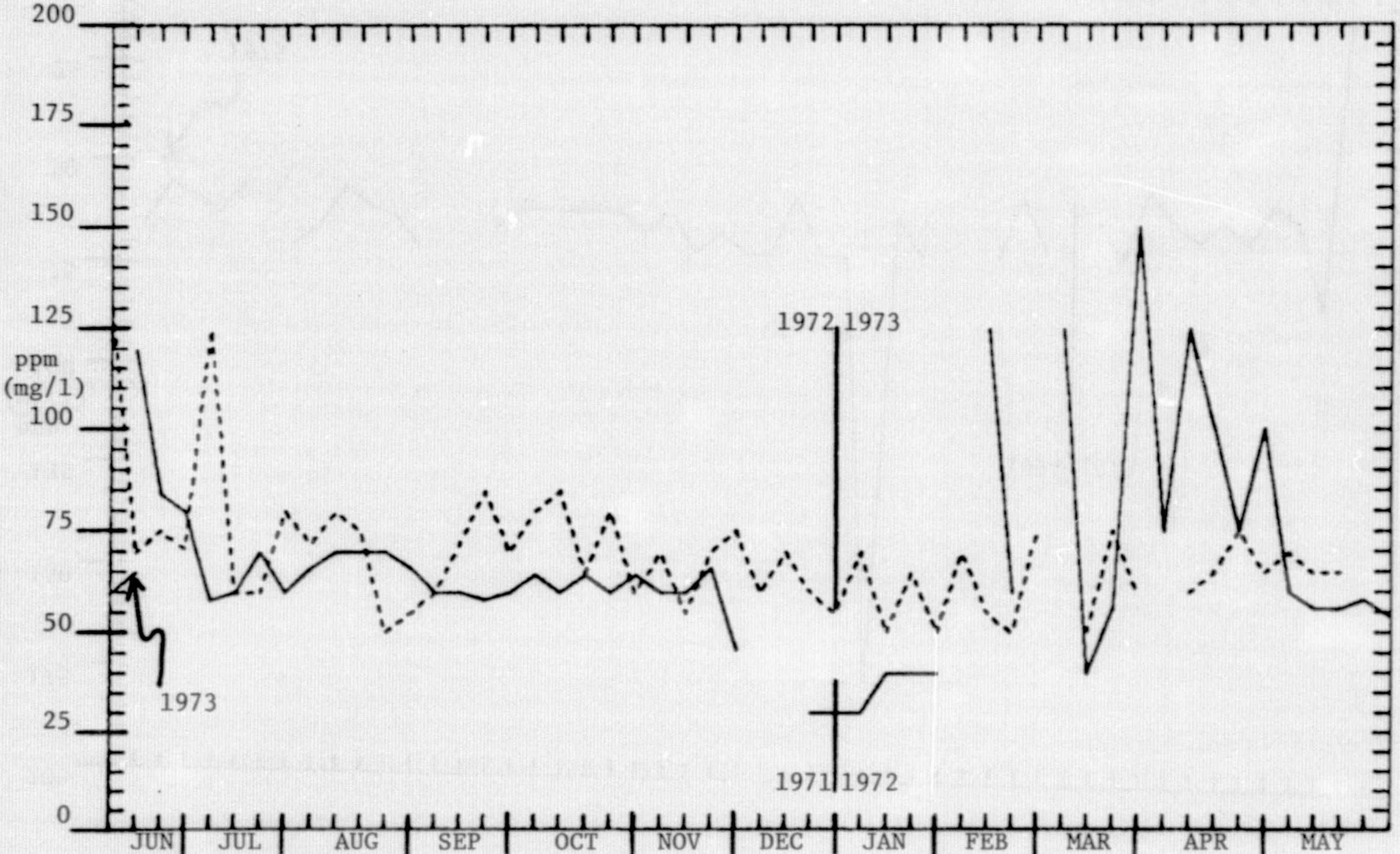

FIGURE 89. WEEKLY HARDNESS OF BROWNS FERRY FROM JUNE 7, 1971 TO JUNE 11, 1973.

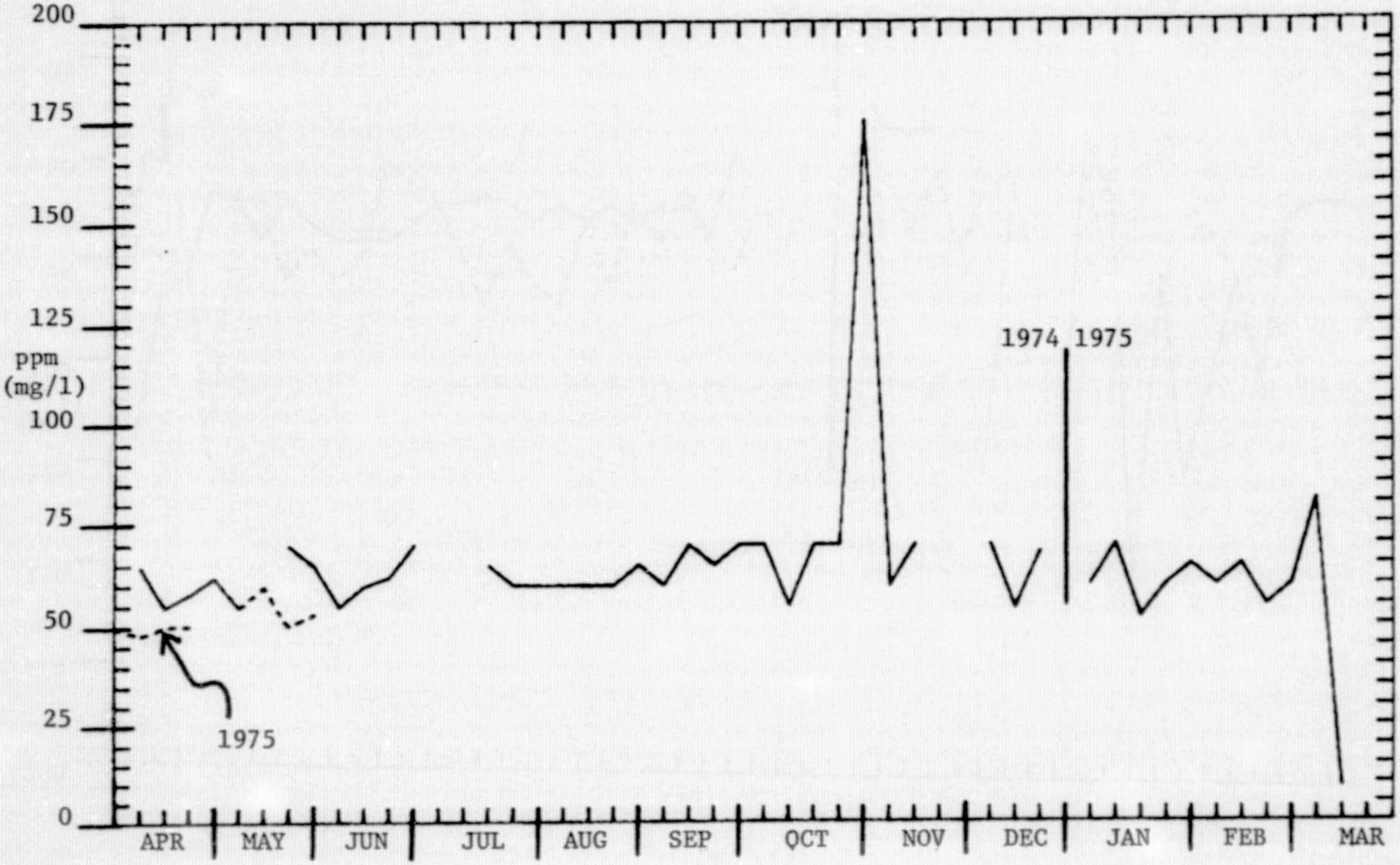

FIGURE 90. WEEKLY HARDNESS OF BROWNS FERRY FROM MARCH 26, 1974 TO MAY 28, 1975.

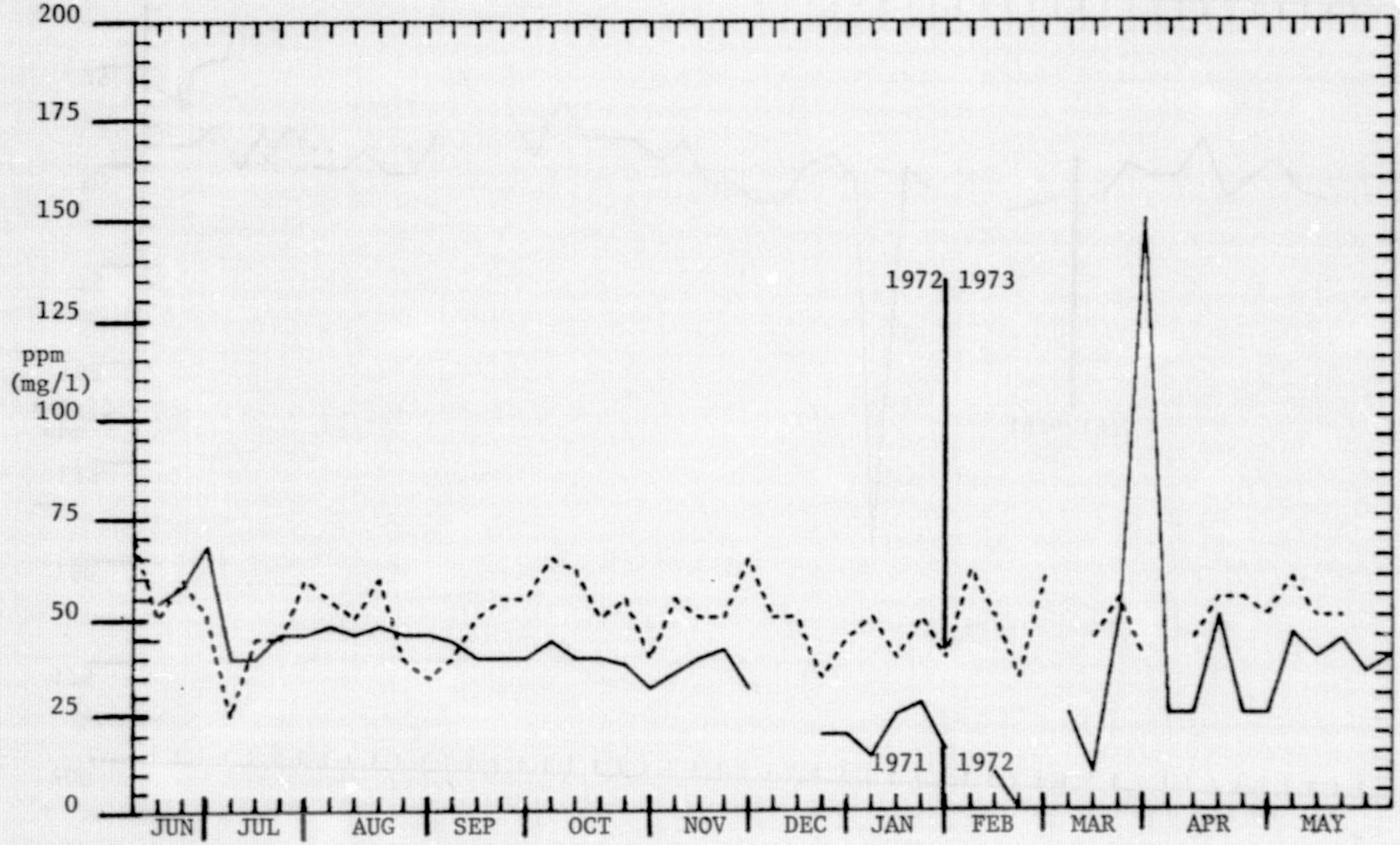

FIGURE 91. WEEKLY CALCIUM OF BROWNS FERRY FROM JUNE 7, 1971 TO JUNE 11, 1973.

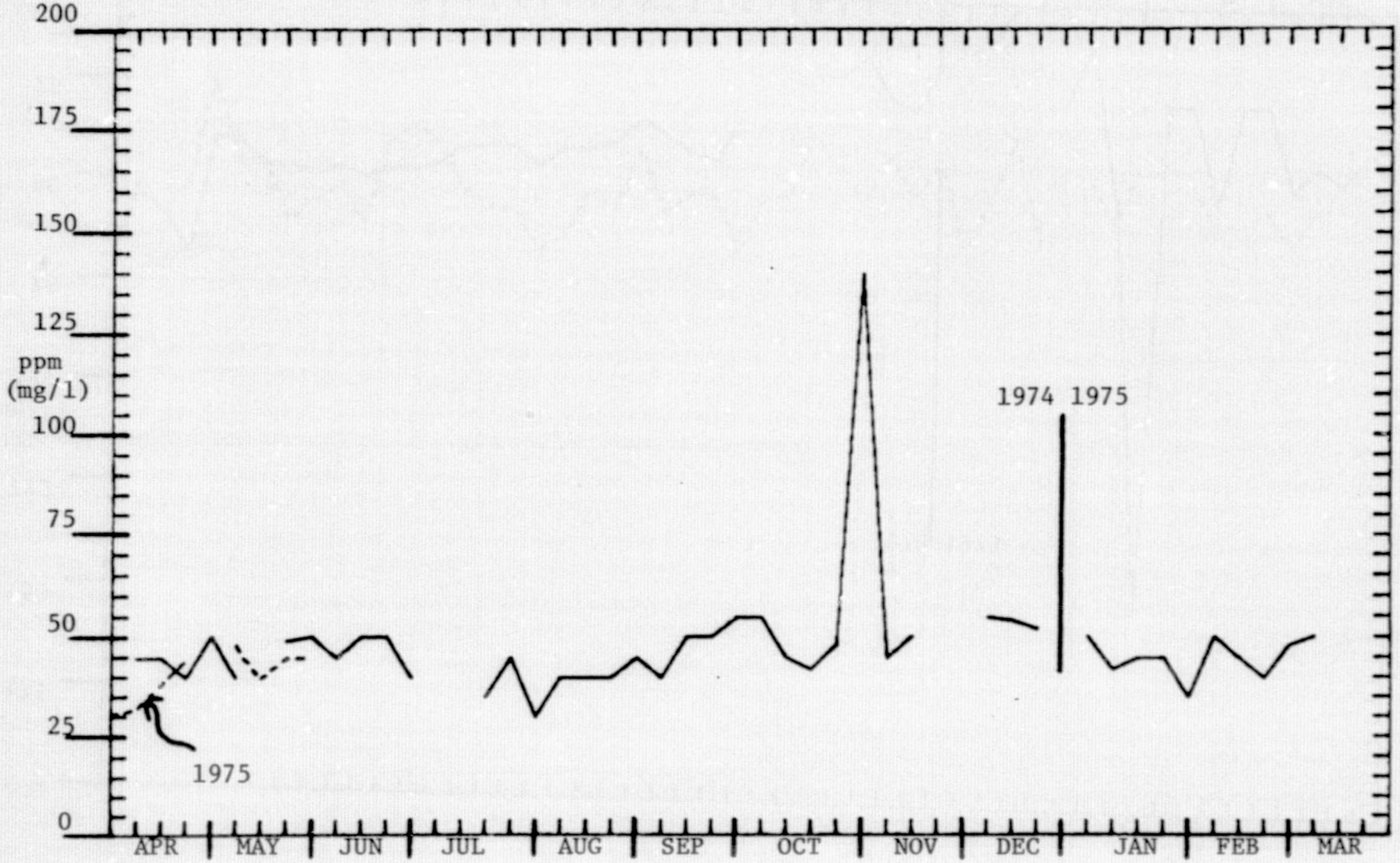

FIGURE 92. WEEKLY CALCIUM OF BROWNS FERRY FROM MARCH 26, 1974 TO MAY 28, 1975.

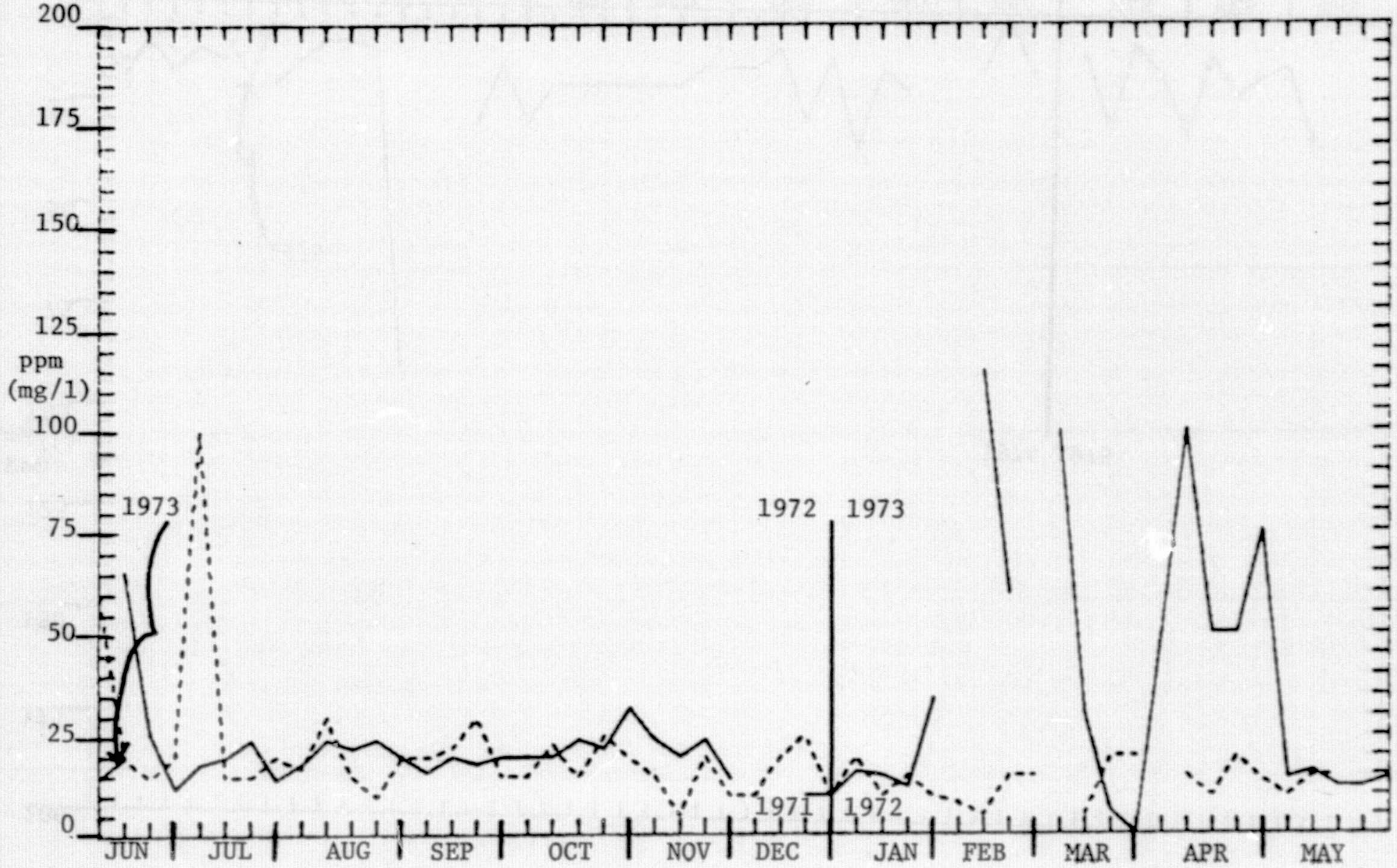

FIGURE 93. WEEKLY MAGNESIUM OF BROWNS FERRY FROM JUNE 7, 1971 TO JUNE 11, 1973.

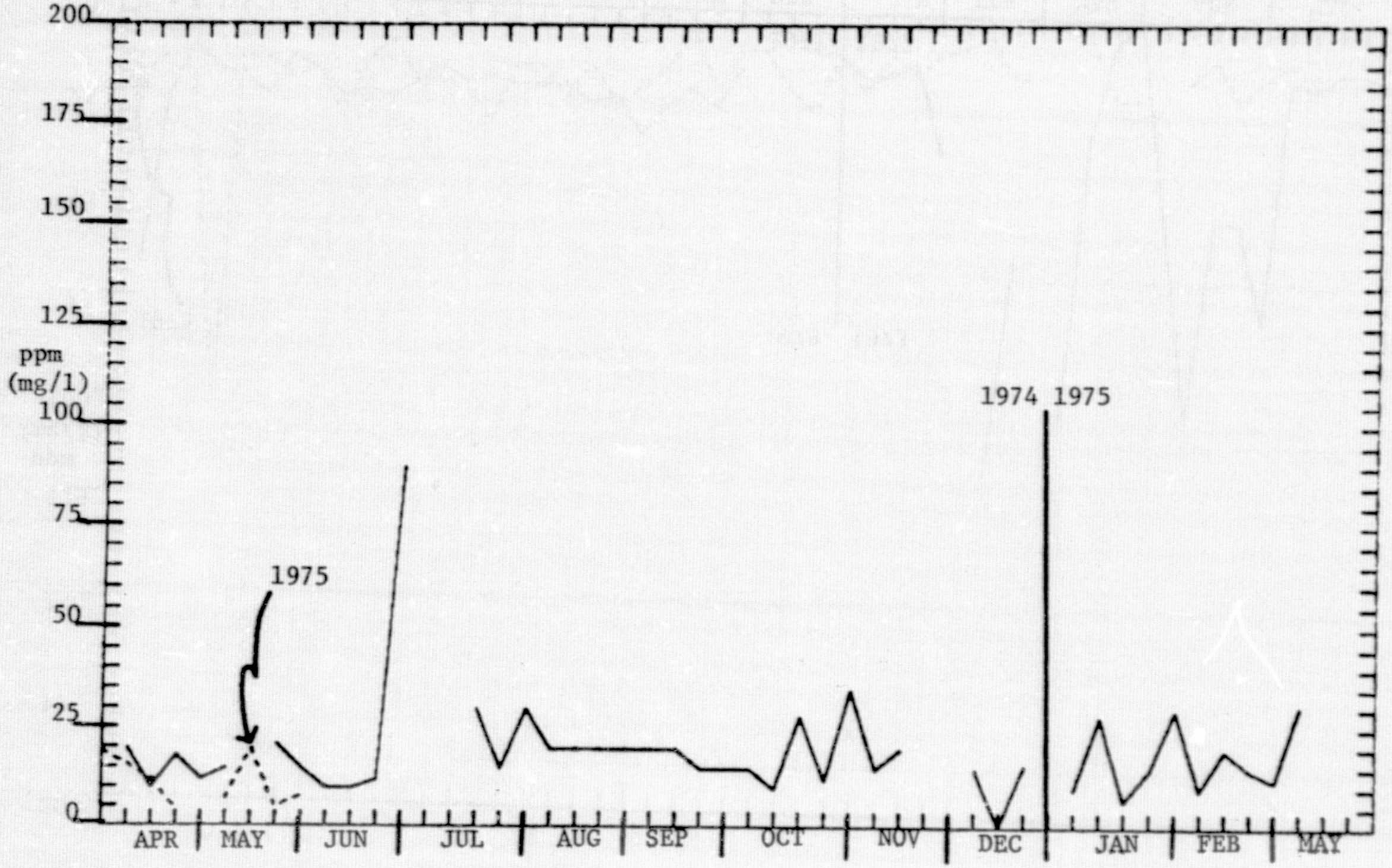

FIGURE 94. WEEKLY MAGNESIUM OF BROWNS FERRY FROM MARCH 26, 1974 TO MAY 28, 1975.

WHITAKER LAKE

DATE	CHLORIDES	TOTAL DISSOLVED SOLIDS
710706	15.000	180.000
711406	30.000	130.000
712106	15.000	160.000
712806	25.000	140.000
710407	25.000	170.000
711207	25.000	150.000
711907	20.000	120.000
712607	25.000	120.000
710208	25.000	160.000
710908	25.000	150.000
711608	25.000	160.000
712308	30.000	150.000
713008	35.000	150.000
710609	30.000	150.000
711309	30.000	180.000
712009	30.000	140.000
712809	30.000	150.000
710110	999.000	999.000
710510	30.000	150.000
711210	30.000	150.000
712010	30.000	150.000
712710	40.000	120.000
710111	25.000	100.000
710811	25.000	150.000
711511	25.000	150.000
710612	30.000	160.000
711012	999.000	999.000
711912	25.000	110.000
712412	15.000	140.000
720101	20.000	200.000
720301	25.000	150.000
721101	20.000	150.000
721801	999.000	999.000
722301	25.000	100.000
722601	25.000	150.000
720202	25.000	140.000
720902	34.000	150.000
721602	50.000	150.000
722402	50.000	150.000
720103	50.000	150.000
720803	50.000	200.000
721703	20.000	150.000
722203	50.000	150.000
723003	50.000	150.000
720604	50.000	150.000
721304	50.000	150.000
722004	50.000	150.000
722604	50.000	150.000
720305	25.000	150.000
721005	25.000	150.000
721705	25.000	140.000
722505	25.000	150.000
722905	25.000	130.000
720806	7.500	150.000
721506	7.500	120.000

DATE	CHLORIDES	TOTAL DISSOLVED SOLIDS
722206	80.000	999.000
722806	10.000	999.000
720407	50.000	999.000
721307	10.000	180.000
722007	7.500	200.000
722607	20.000	200.000
720308	10.000	999.000
721008	10.000	999.000
721708	20.000	200.000
722408	15.000	200.000
723108	.000	200.000
720709	10.000	300.000
721509	20.000	150.000
721809	20.000	999.000
722509	30.000	200.000
720210	20.000	150.000
720910	20.000	200.000
721610	5.000	180.000
722310	15.000	180.000
723010	10.000	120.000
720611	20.000	150.000
721311	10.000	180.000
722011	10.000	200.000
722711	8.000	180.000
720412	20.000	200.000
721112	5.000	250.000
721712	7.500	180.000
722612	999.000	999.000
730101	20.000	140.000
730901	20.000	150.000
731501	7.500	999.000
732201	10.000	999.000
730202	7.500	210.000
730502	10.000	220.000
731202	10.000	180.000
731902	7.500	999.000
732602	10.000	75.000
730503	10.000	150.000
731203	10.000	999.000
732303	5.500	999.000
733003	10.000	150.000
730404	5.000	999.000
731104	999.000	999.000
731604	5.000	999.000
732304	7.500	999.000
733004	10.000	999.000
730705	7.500	999.000
731405	10.000	999.000
732205	10.000	999.000
732905	11.000	999.000
730406	10.000	999.000
731106	12.500	999.000

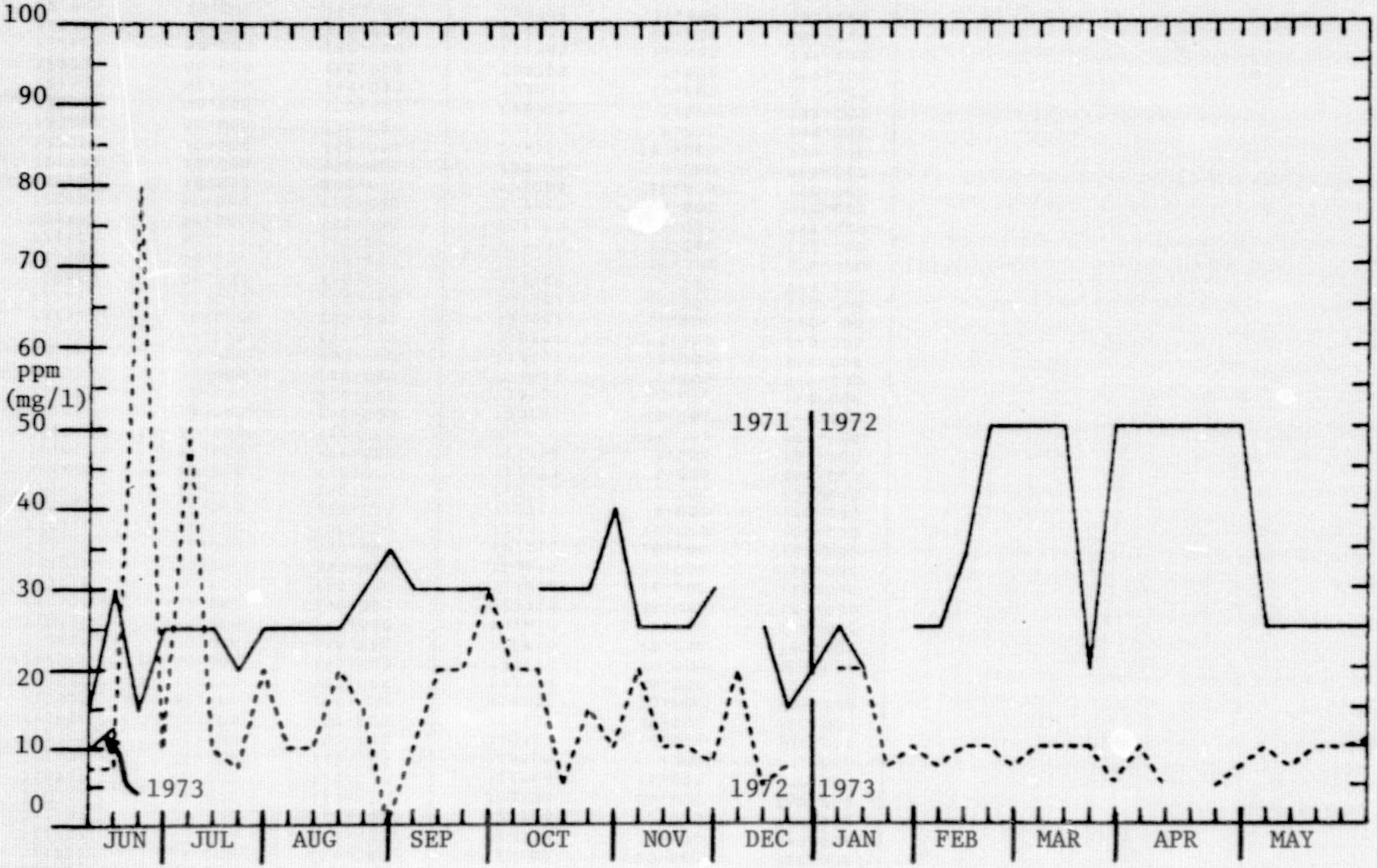

FIGURE 95. WEEKLY CHLORIDES OF WHITACKER FROM JUNE 7, 1971 TO JUNE 11, 1973.

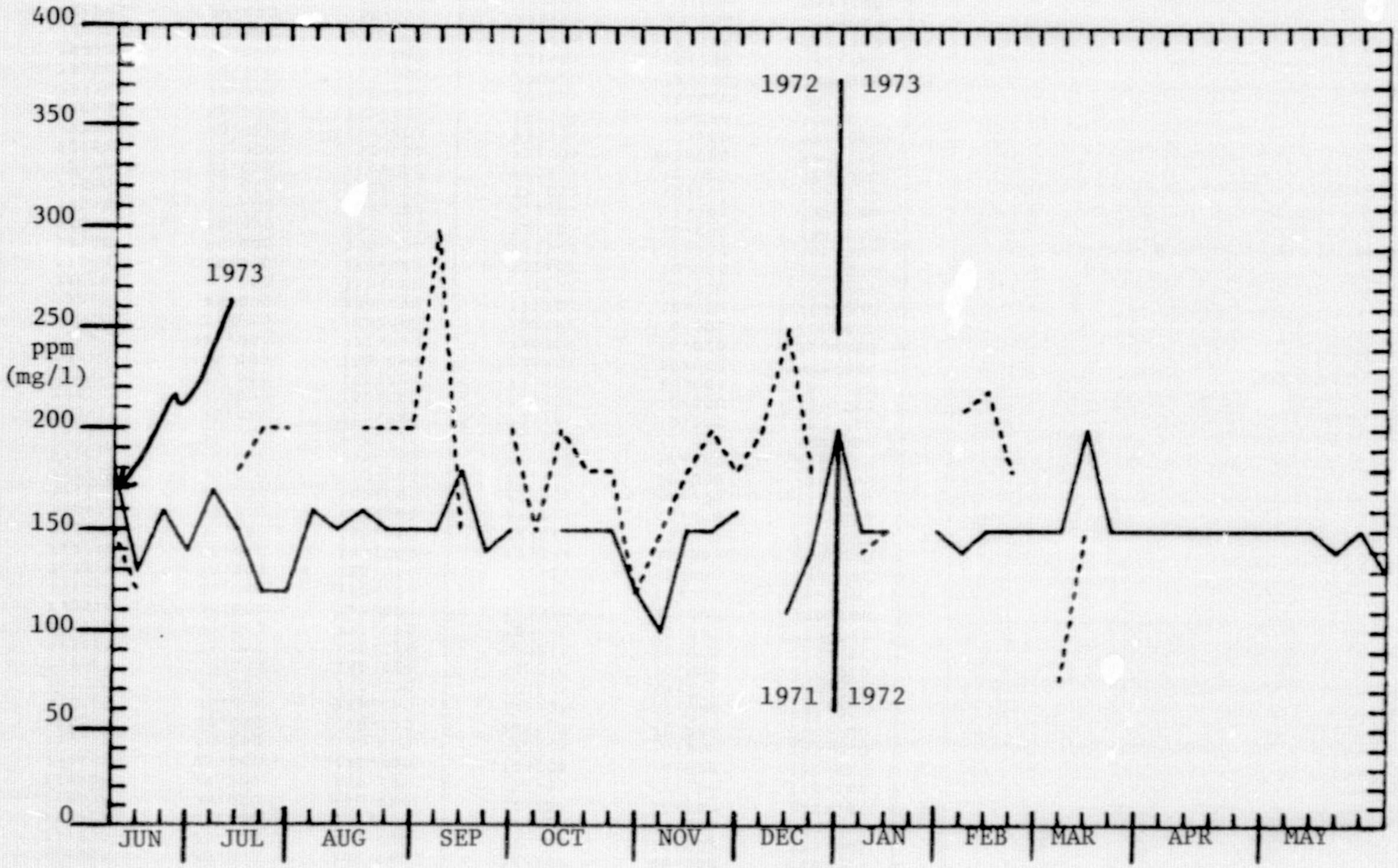

FIGURE 96. WEEKLY TOTAL DISSOLVED SOLIDS OF WHITACKER FROM JUNE 7, 1971 TO JUNE 11, 1973.

MIRROR LAKE

DATE	CHLORIDES	TOTAL DISSOLVED SOLIDS
710706	15.000	150.000
711406	20.000	190.000
712106	20.000	200.000
712806	25.000	110.000
710907	30.000	180.000
711207	30.000	150.000
711907	25.000	110.000
712607	30.000	130.000
710208	35.000	160.000
710908	25.000	150.000
711608	25.000	170.000
712308	30.000	146.000
713008	30.000	150.000
710609	30.000	150.000
711309	25.000	110.000
712009	30.000	140.000
712809	25.000	150.000
710110	999.000	999.000
710510	30.000	160.000
711210	30.000	100.000
712010	40.000	150.000
712710	40.000	148.000
710111	35.000	150.000
710811	30.000	150.000
711511	25.000	100.000
710612	30.000	170.000
711012	999.000	999.000
711412	25.000	140.000
712412	25.000	120.000
720101	30.000	150.000
720301	30.000	150.000
721101	25.000	150.000
721801	999.000	999.000
722301	25.000	150.000
722601	25.000	100.000
720202	30.000	150.000
720902	25.000	150.000
721602	50.000	100.000
722402	50.000	300.000
720103	75.000	150.000
720803	50.000	200.000
721703	25.000	160.000
722203	50.000	150.000
723003	50.000	150.000
720604	50.000	150.000
721304	50.000	150.000
722004	50.000	150.000
722604	50.000	150.000
/20305	20.000	120.000
721005	30.000	150.000
721705	25.000	75.000
722505	999.000	130.000
722905	40.000	110.000
720806	7.500	100.000
721506	7.500	80.000

DATE	CHLORIDES	TOTAL DISSOLVED SOLIDS
722206	7.500	999.000
722806	9.000	999.000
720407	50.000	999.000
721307	60.000	140.000
722007	10.000	150.000
722607	20.000	150.000
720308	12.000	999.000
721008	7.500	999.000
721708	10.000	130.000
722408	12.500	270.000
723108	10.000	100.000
720709	10.000	175.000
721509	20.000	200.000
721809	20.000	999.000
722509	25.000	350.000
720210	20.000	150.000
720910	20.000	150.000
721610	10.000	220.000
722310	20.000	150.000
723010	12.500	160.000
720611	20.000	190.000
721311	15.000	210.000
722011	10.000	210.000
722711	10.000	210.000
720412	20.000	150.000
721112	20.000	230.000
721712	12.500	250.000
722612	999.000	999.000
730101	15.000	150.000
730901	20.000	200.000
731501	10.000	999.000
732201	25.000	999.000
730202	10.000	230.000
730502	10.000	200.000
731202	10.000	250.000
731902	15.000	999.000
732602	10.000	150.000
730503	7.500	100.000
731203	10.000	999.000
732303	9.500	999.000
733003	10.000	100.000
730404	10.000	999.000
731104	999.000	999.000
731604	7.500	999.000
732304	10.000	999.000
733004	10.000	999.000
730705	12.500	999.000
731405	15.000	999.000
732205	7.500	999.000
732905	10.000	999.000
730406	7.500	999.000
731106	15.000	999.000

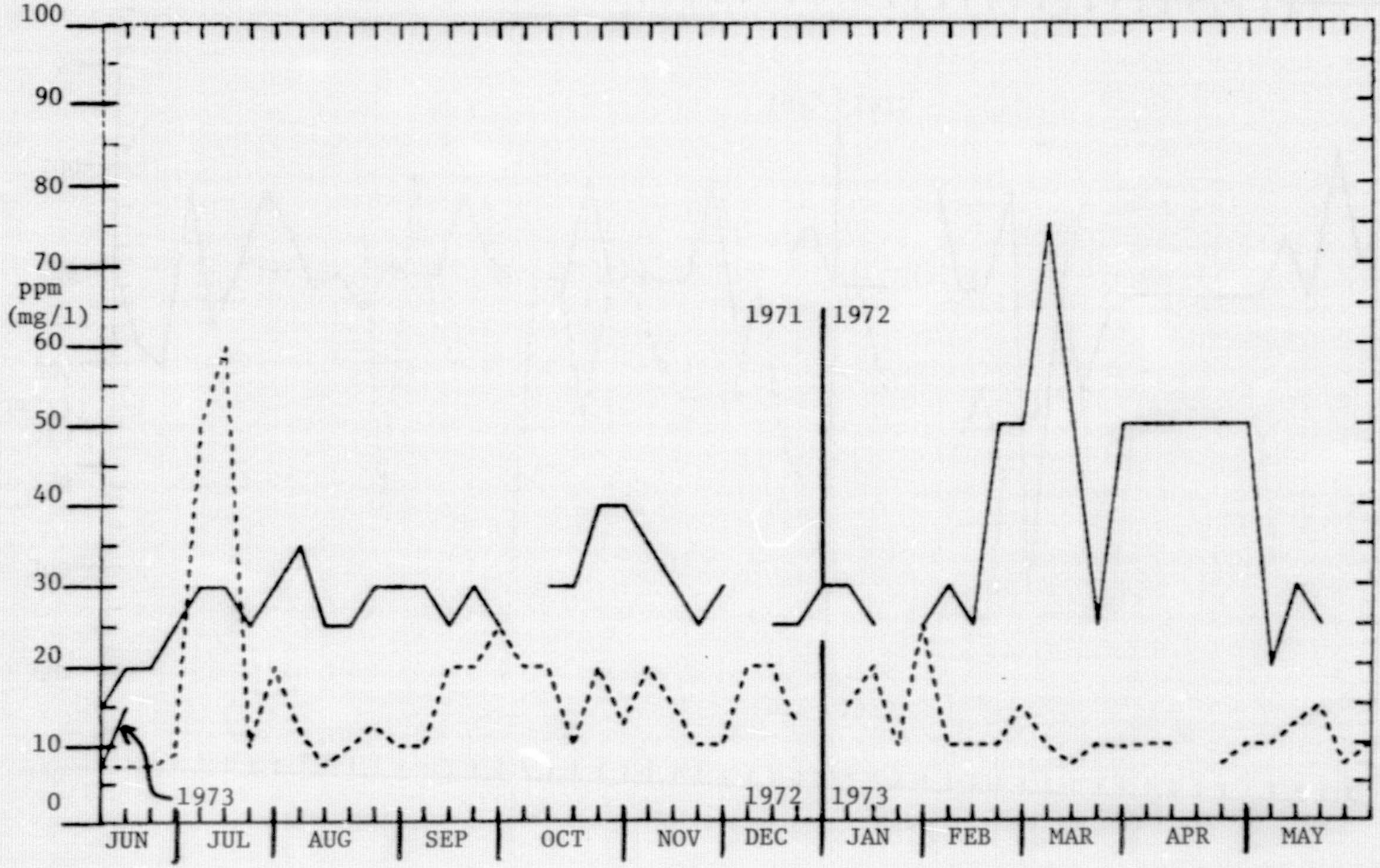

FIGURE 97. WEEKLY CHLORIDES OF MIRROR FROM JUNE 7, 1971 TO JUNE 11, 1973.

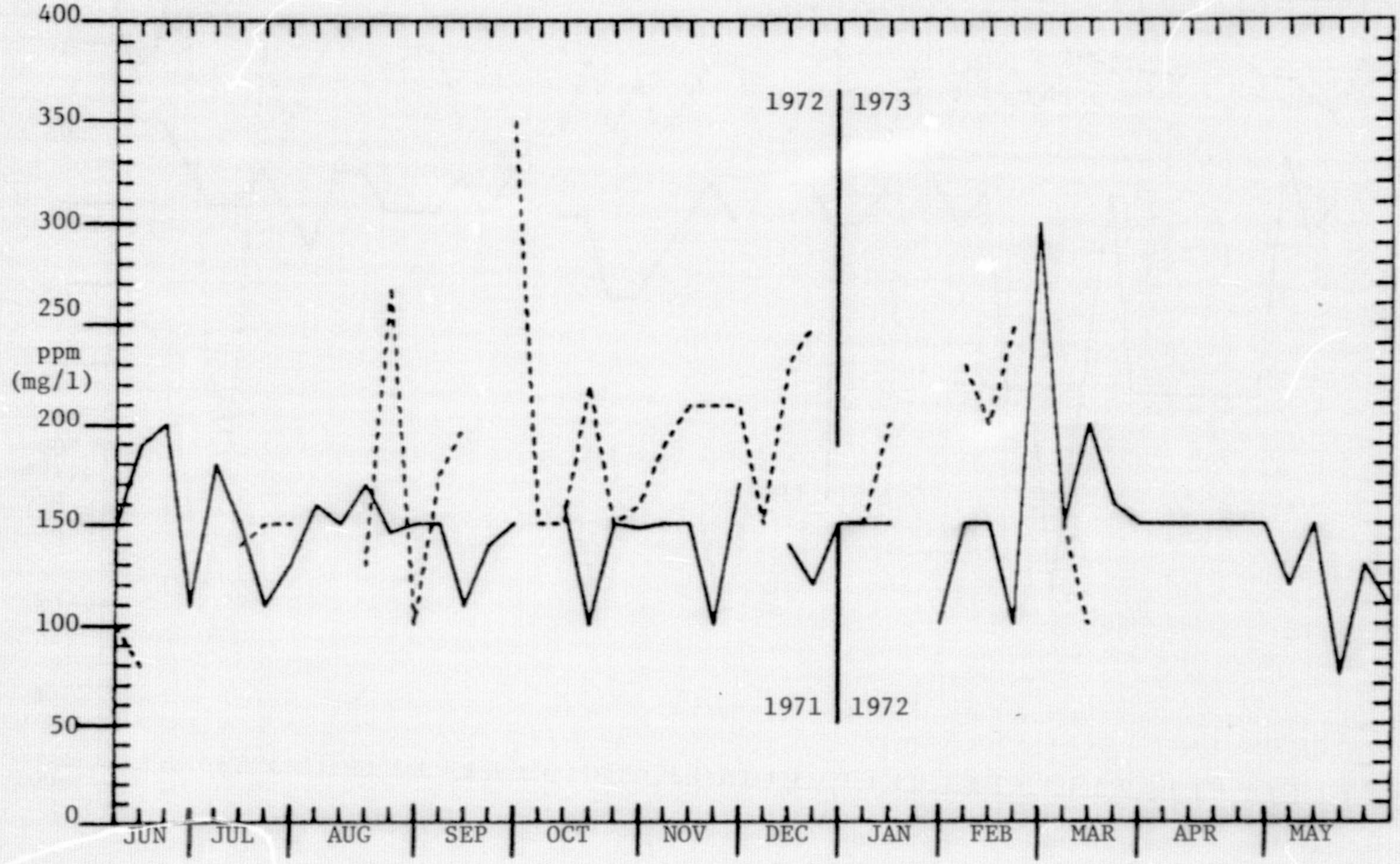

FIGURE 98. WEEKLY TOTAL DISSOLVED SOLIDS OF MIRROR FROM JUNE 7, 1971 TO JUNE 11, 1973.

WHITESBURG BOAT DOCK

DATE	CHLORIDES	TOTAL DISSOLVED SOLIDS
710606	999.000	999.000
711106	25.000	180.000
711806	25.000	140.000
712506	35.000	170.000
710207	25.000	150.000
710907	35.000	150.000
711607	25.000	130.000
712307	30.000	130.000
713007	25.000	150.000
710608	25.000	150.000
711308	25.000	140.000
712008	25.000	150.000
712708	30.000	150.000
710209	30.000	150.000
711009	30.000	150.000
711709	25.000	140.000
712409	25.000	150.000
710110	25.000	150.000
710810	30.000	150.000
711510	25.000	150.000
712210	35.000	150.000
712910	30.000	150.000
710311	999.000	999.000
710811	25.000	150.000
711211	30.000	150.000
710612	35.000	200.000
711012	999.000	999.000
711412	20.000	128.000
712412	25.000	120.000
720101	25.000	130.000
720301	25.000	150.000
721101	35.000	140.000
721801	999.000	999.000
722301	999.000	999.000
722601	30.000	80.000
720202	25.000	150.000
720902	50.000	225.000
721602	50.000	150.000
722402	50.000	150.000
720103	50.000	150.000
720803	999.000	200.000
721703	25.000	180.000
722203	50.000	150.000
723003	50.000	200.000
720604	50.000	150.000
721304	50.000	150.000
722004	50.000	150.000
722604	50.000	999.000
720305	25.000	150.000
721005	25.000	120.000
721705	25.000	100.000
722505	30.000	70.000
722905	25.000	70.000
720806	8.500	120.000
721506	10.000	100.000

DATE	CHLORIDES	TOTAL DISSOLVED SOLIDS
722206	90.000	999.000
722806	10.000	999.000
720407	50.000	999.000
721307	11.000	130.000
722007	12.500	155.000
722607	25.000	200.000
720308	10.000	999.000
721008	7.500	999.000
721708	15.000	290.000
722408	10.000	300.000
723108	.000	210.000
720709	7.500	220.000
721509	20.000	100.000
721809	20.000	999.000
722509	20.000	250.000
720210	20.000	200.000
720910	20.000	999.000
721610	10.000	210.000
722310	20.000	280.000
723010	10.000	122.000
720611	20.000	200.000
721311	12.500	230.000
722011	7.500	230.000
722711	8.000	230.000
720412	20.000	180.000
721112	12.500	220.000
721712	7.500	210.000
722612	999.000	999.000
730101	15.000	150.000
730901	20.000	200.000
731501	7.500	999.000
732201	7.500	999.000
730202	7.500	180.000
730502	7.500	180.000
731202	15.000	150.000
731902	5.000	999.000
732602	15.000	150.000
730503	15.000	100.000
731203	9.000	999.000
732303	5.000	999.000
733003	10.000	110.000
730404	5.000	999.000
731104	999.000	999.000
731604	7.500	999.000
732304	12.000	999.000
733004	999.000	999.000
730705	15.000	999.000
731405	32.000	220.000
732205	10.000	999.000
732905	12.500	999.000
730406	11.000	999.000
731106	10.000	999.000

WHITESBURG BOAT DOCK

DATE	CHLORIDES	TOTAL DISSOLVED SOLIDS
742603	999.000	999.000
740204	6.250	999.000
740904	999.000	999.000
741604	10.000	150.000
742304	13.000	150.000
743004	999.000	999.000
740605	6.500	150.000
741305	9.500	150.000
742005	8.000	150.000
742705	7.500	175.000
740406	5.000	999.000
741106	7.500	150.000
741806	7.500	150.000
742506	2.500	999.000
740207	8.500	150.000
740907	7.500	150.000
741607	7.500	999.000
742307	10.000	999.000
743007	5.000	999.000
740608	10.000	150.000
741308	15.000	150.000
742208	12.500	160.000
742708	12.500	160.000
740909	6.000	130.000
741009	10.000	140.000
741709	10.000	150.000
742409	10.000	150.000
740110	10.000	150.000
740810	12.500	140.000
741510	10.000	150.000
742210	10.000	150.000
743010	999.000	999.000
740511	10.000	150.000
741211	999.000	999.000
742012	9.000	150.000
742611	15.000	120.000
740712	7.500	120.000
741112	8.000	120.000
741712	10.000	120.000
742312	10.000	100.000
750201	7.500	12.000
750801	7.500	120.000
751401	7.500	140.000
752101	7.500	150.000
752801	7.500	150.000
750402	999.000	999.000
751402	12.500	150.000
752002	10.000	100.000
752502	7.500	80.000
750403	6.000	120.000
751103	999.000	999.000
751803	7.500	70.000
752503	17.500	125.000
750104	22.500	120.000
750704	7.500	130.000
751504	7.000	125.000
752204	5.500	120.000
750105	5.000	130.000
750805	7.200	95.000
751605	6.000	120.000
752405	9.000	999.000
752805	12.000	999.000

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OF POOR QUALITY

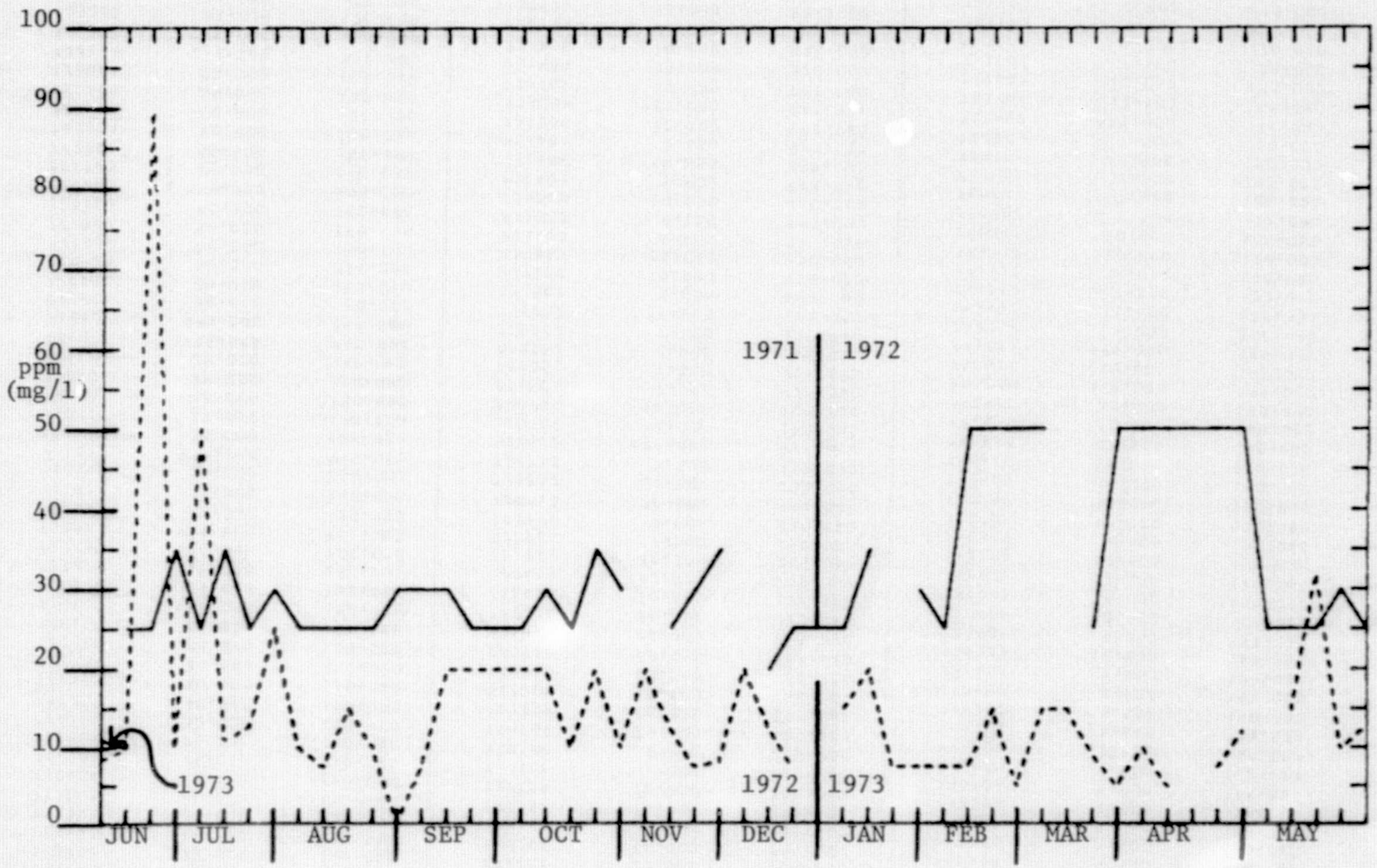

FIGURE 99. WEEKLY CHLORIDES OF WHITESBURG FROM JUNE 6, 1971 TO JUNE 15, 1973.

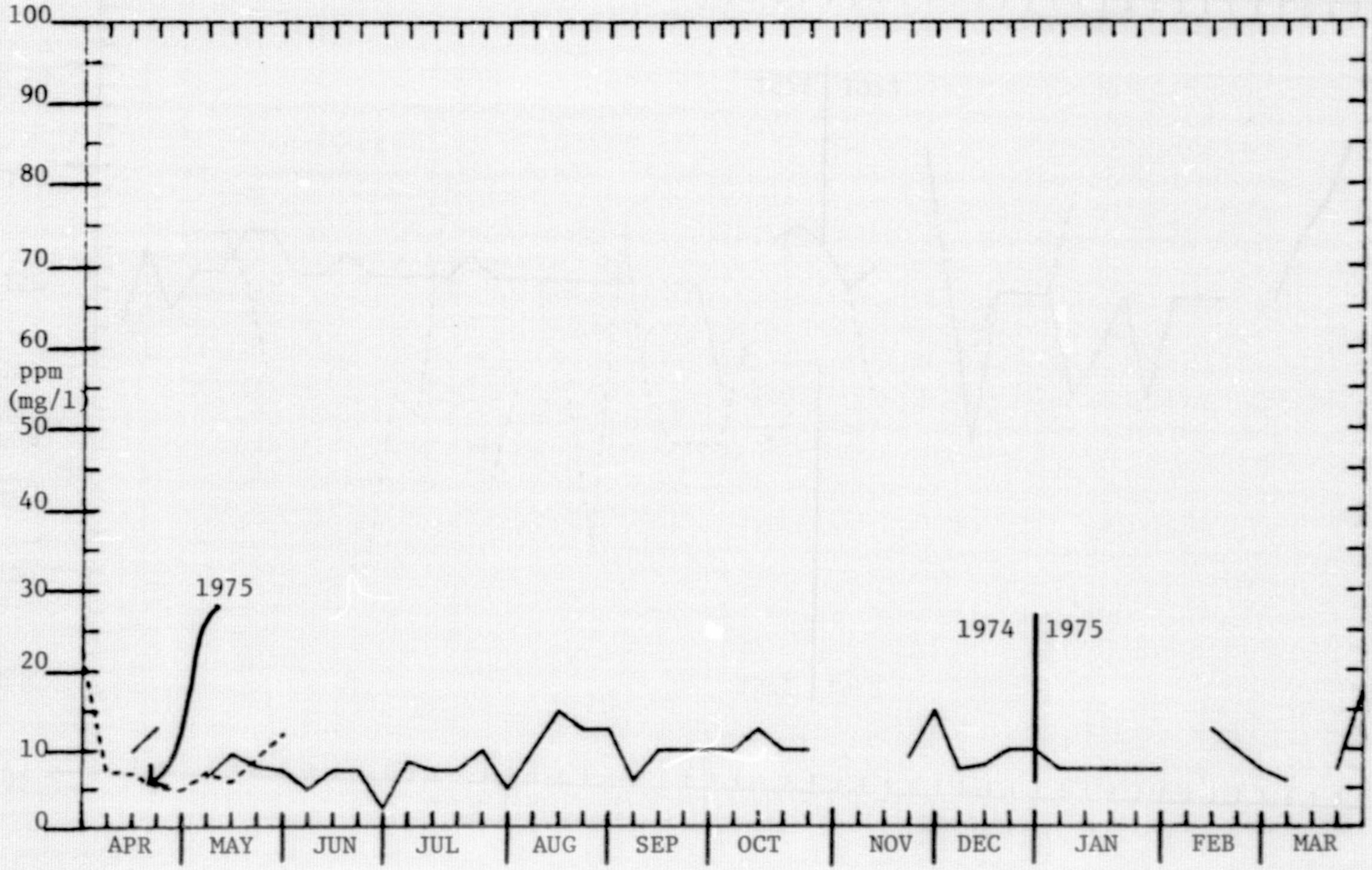

FIGURE 100. WEEKLY CHLORIDES OF WHITESBURG FROM MARCH 27, 1974 TO MAY 28, 1975.

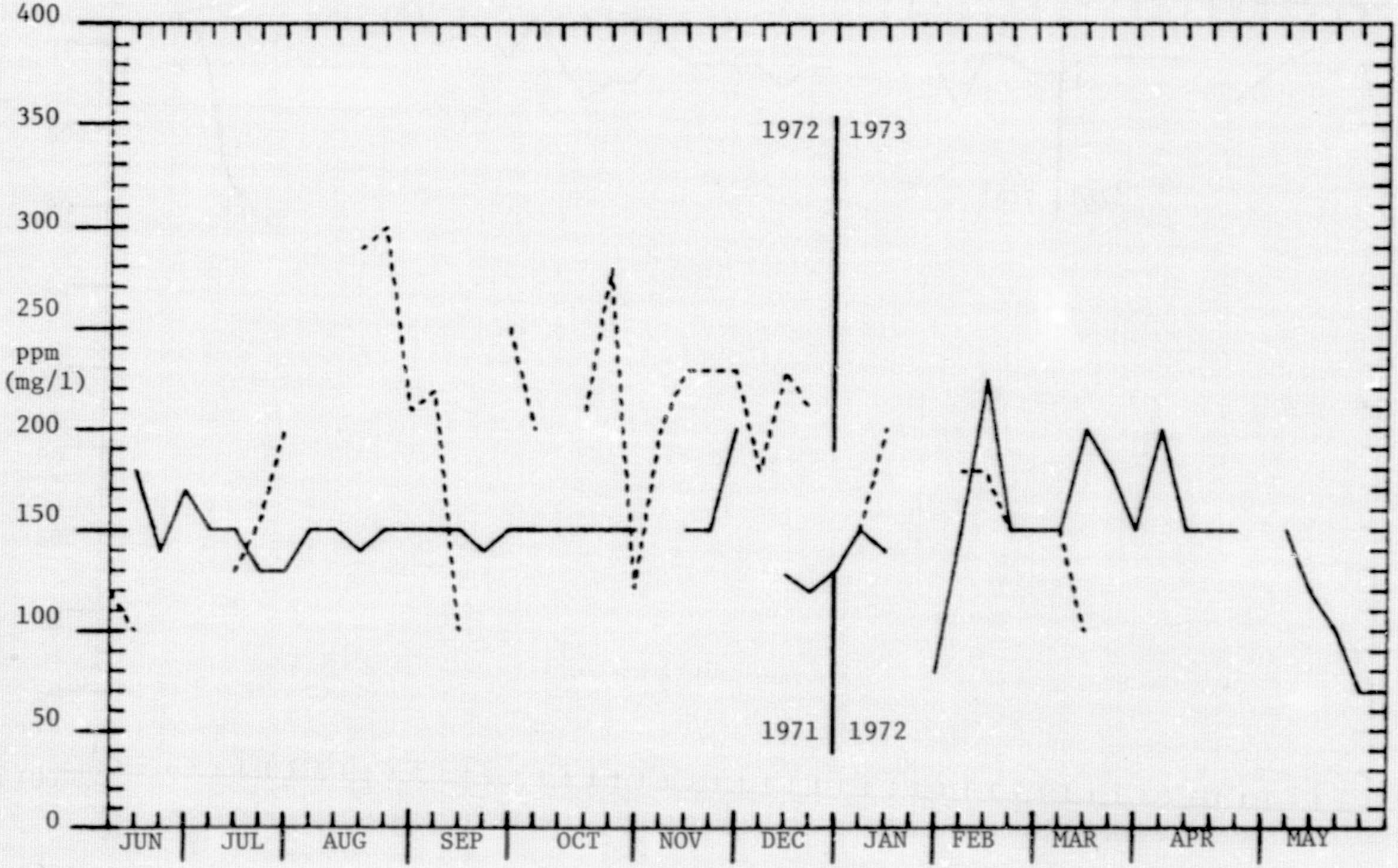

FIGURE 101. WEEKLY TOTAL DISSOLVED SOLIDS OF WHITESBURG FROM JUNE 7, 1971 TO JUNE 11, 1973.

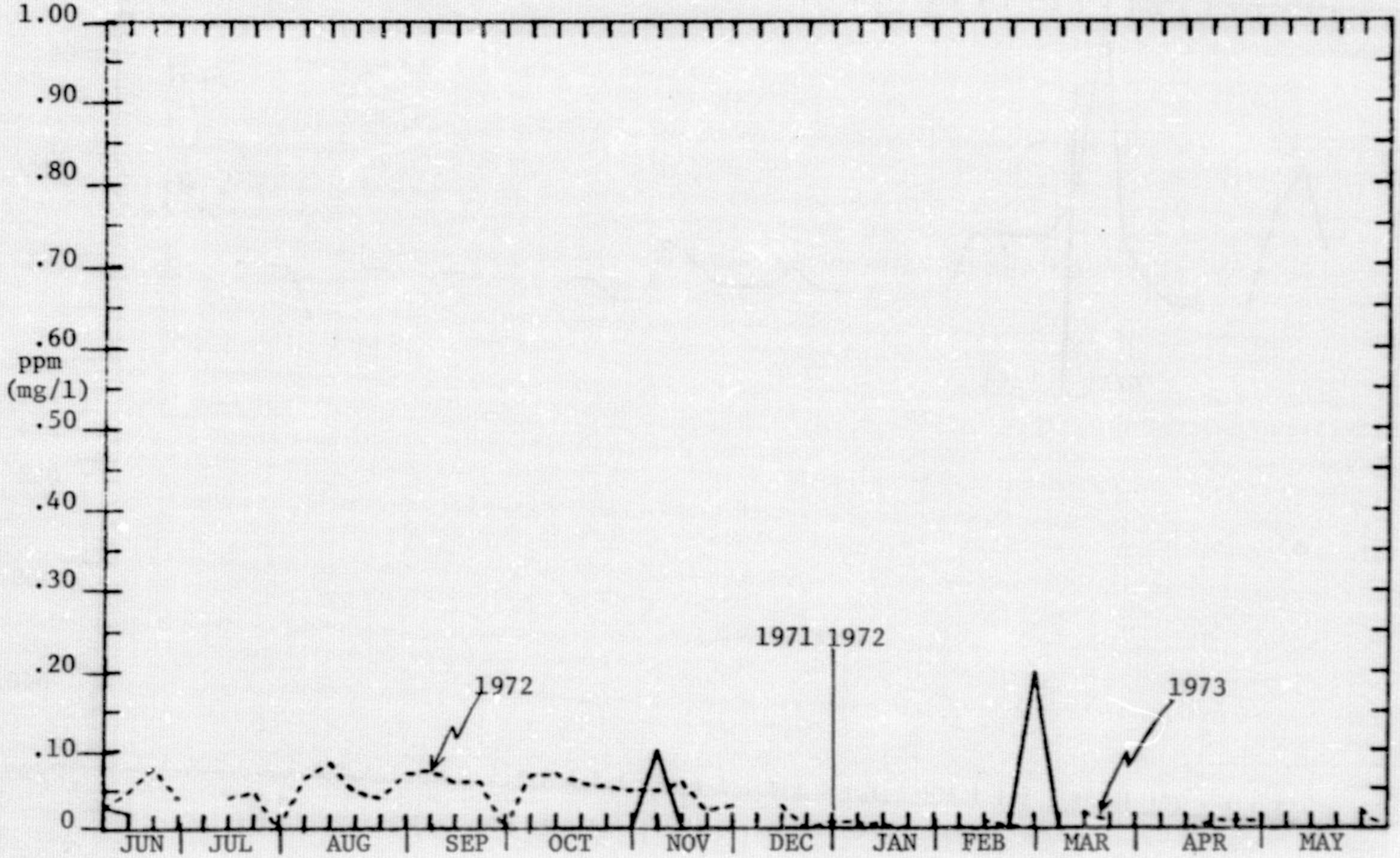

FIGURE 111. WEEKLY CHLORINE OF WHITACKER FROM JUNE 7, 1971 TO JUNE 11, 1973.

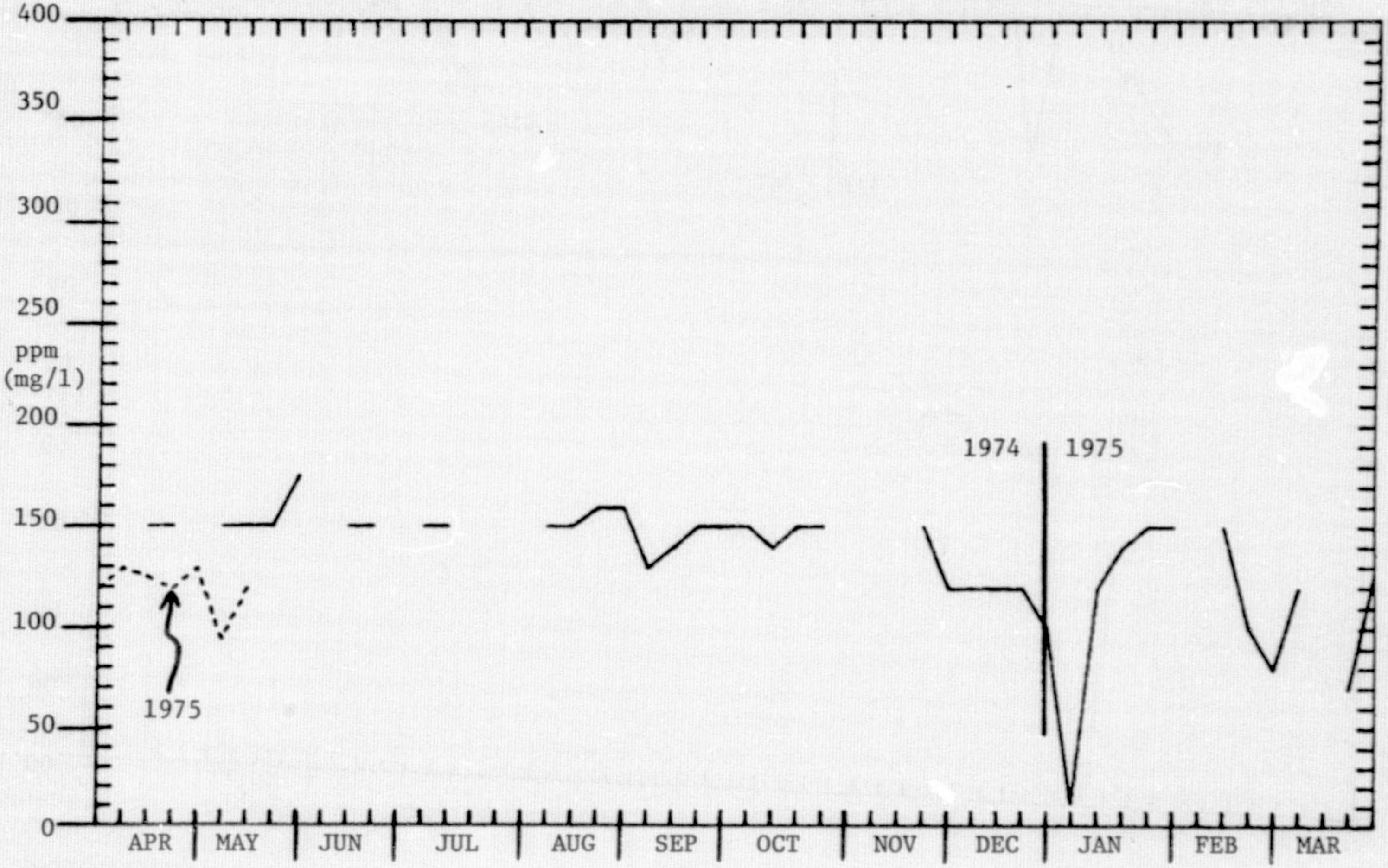

FIGURE 102. WEEKLY TOTAL DISSOLVED SOLIDS OF WHITESBURG FROM MARCH 27, 1974 TO MAY 28, 1975.

WHEELER-DECATUR

DATE	CHLORIDES	TOTAL DISSOLVED SOLIDS
710606	999.000	999.000
710906	30.000	180.000
711606	30.000	180.000
712306	20.000	180.000
713006	35.000	150.000
710707	35.000	150.000
711407	25.000	150.000
712107	30.000	130.000
712807	30.000	150.000
710408	35.000	170.000
711108	35.000	175.000
711808	25.000	160.000
712508	25.000	150.000
710109	25.000	150.000
710809	30.000	150.000
711709	25.000	200.000
712309	30.000	150.000
712909	30.000	130.000
710610	25.000	150.000
711310	30.000	150.000
712010	30.000	140.000
712710	40.000	130.000
710311	35.000	130.000
711011	25.000	150.000
711711	40.000	150.000
710712	25.000	150.000
711012	999.000	999.000
711412	999.000	999.000
712412	25.000	120.000
713112	25.000	150.000
720401	25.000	130.000
721201	25.000	100.000
721801	25.000	120.000
722401	25.000	150.000
723101	25.000	50.000
720202	999.000	999.000
720902	50.000	150.000
721402	50.000	150.000
722202	50.000	150.000
722802	50.000	150.000
720603	50.000	150.000
721303	25.000	120.000
722003	50.000	200.000
722803	50.000	150.000
720304	50.000	150.000
721304	50.000	150.000
721704	50.000	150.000
722404	50.000	150.000
720205	30.000	150.000
720805	30.000	150.000
721505	25.000	130.000
722405	30.000	75.000
723105	30.000	70.000
720606	10.000	100.000
721306	7.000	75.000

DATE	CHLORIDES	TOTAL DISSOLVED SOLIDS
722006	10.000	80.000
722706	10.000	999.000
720607	50.000	999.000
721207	20.000	210.000
721807	60.000	200.000
722507	20.000	999.000
720108	25.000	250.000
720808	30.000	999.000
721508	30.000	150.000
722208	25.000	300.000
722908	10.000	200.000
720509	15.000	300.000
721309	20.000	999.000
722009	20.000	100.000
722709	20.000	250.000
720410	20.000	200.000
721110	20.000	180.000
722010	15.000	250.000
722510	25.000	200.000
720311	15.000	160.000
721011	15.000	210.000
721511	20.000	240.000
722211	10.000	180.000
722911	20.000	150.000
720612	20.000	210.000
721312	10.000	170.000
722112	10.000	180.000
722912	20.000	999.000
730501	15.000	150.000
731001	15.000	999.000
731901	17.500	999.000
732401	999.000	999.000
733101	15.000	150.000
730802	6.000	200.000
731602	5.000	190.000
732202	15.000	100.000
732602	999.000	999.000
730103	12.500	180.000
730903	4.000	130.000
732803	10.000	110.000
733003	999.000	999.000
730604	10.000	999.000
731304	20.000	200.000
731804	10.000	150.000
732704	11.000	999.000
730405	10.000	150.000
731105	10.000	999.000
731805	10.000	999.000
732505	12.500	999.000
730106	10.000	150.000
730806	12.500	999.000
731506	10.000	999.000

WHEELER-DECATUR

DATE	CHLORIDES	TOTAL DISSOLVED SOLIDS
742703	10.000	100.000
740304	999.000	999.000
741004	6.250	150.000
741704	7.500	150.000
742404	7.500	130.000
740105	9.000	140.000
740805	7.500	150.000
741505	999.000	999.000
742205	9.000	150.000
742905	7.500	999.000
740506	7.500	200.000
741206	9.000	150.000
741906	10.000	150.000
742606	6.000	200.000
740307	999.000	999.000
741007	10.000	999.000
741707	10.000	999.000
742407	5.000	999.000
743107	12.500	999.000
740708	10.000	160.000
741408	5.000	130.000
742108	15.000	170.000
742808	15.000	180.000
740409	25.000	110.000
741109	7.500	130.000
741809	10.000	120.000
742509	7.500	140.000
740210	10.000	150.000
740910	12.500	150.000
741610	10.000	150.000
742310	14.000	150.000
743010	12.000	175.000
740611	10.000	130.000
741311	10.000	130.000
742012	10.000	150.000
742711	15.000	130.000
740612	7.500	130.000
741112	10.000	120.000
741812	9.000	120.000
742412	999.000	999.000
743112	10.000	100.000
750801	10.000	120.000
751501	7.500	120.000
752401	5.000	150.000
752901	10.000	150.000
750702	10.000	150.000
751202	10.000	150.000
751902	10.000	150.000
752502	10.000	100.000
750503	10.000	150.000
751203	999.000	999.000
751903	6.000	65.000
752603	7.500	85.000
750204	6.500	120.000
750904	5.000	110.000
751604	15.500	120.000
752304	6.000	130.000
753004	8.000	120.000
750705	3.200	100.000
751405	6.000	120.000
752405	9.000	999.000
752805	6.000	999.000

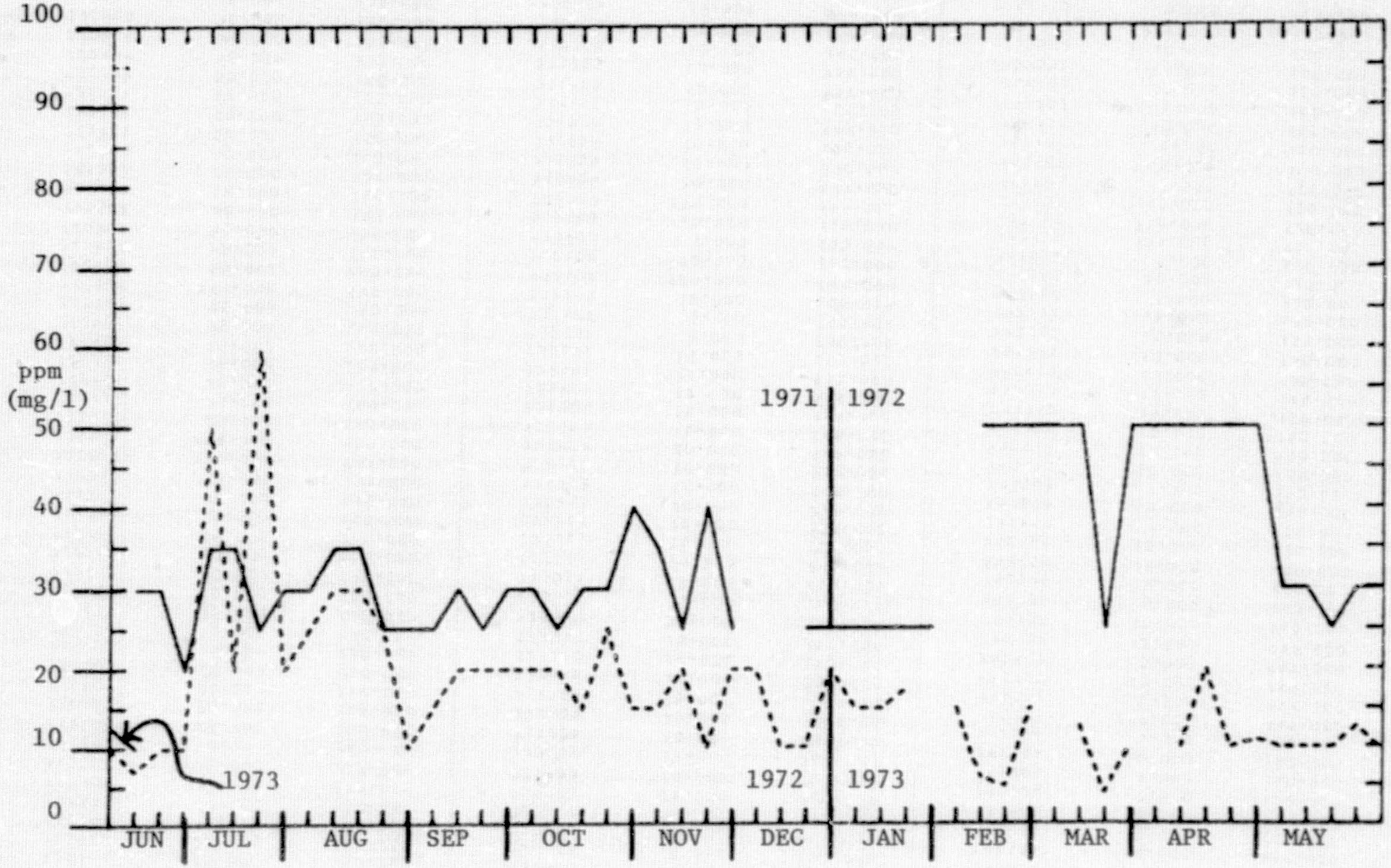

FIGURE 103. WEEKLY CHLORIDES OF WHEELER FROM JUNE 6, 1971 TO JUNE 15, 1973.

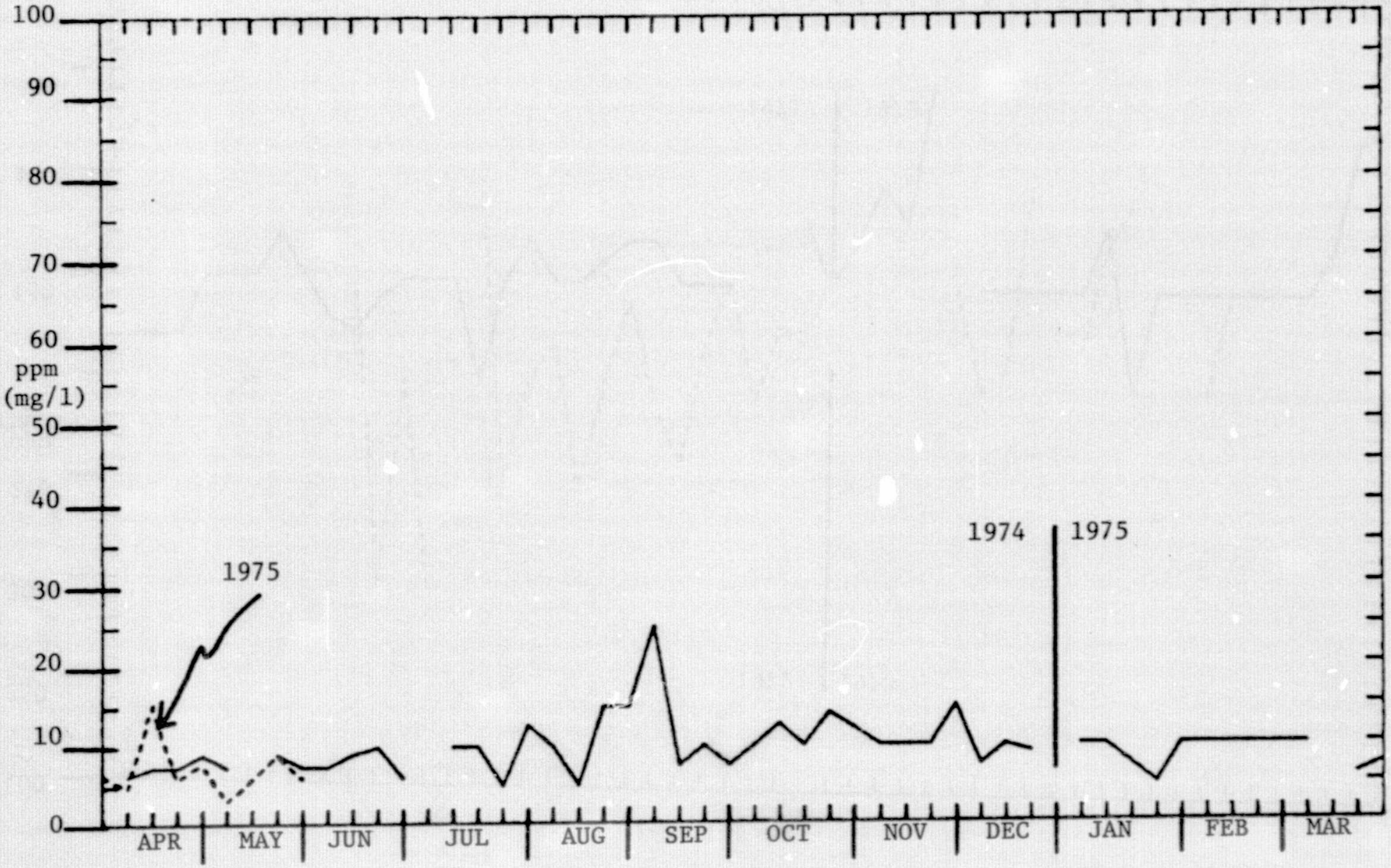

FIGURE 104. WEEKLY CHLORIDES OF WHEELER FROM MARCH 27, 1974 TO MAY 28, 1975.

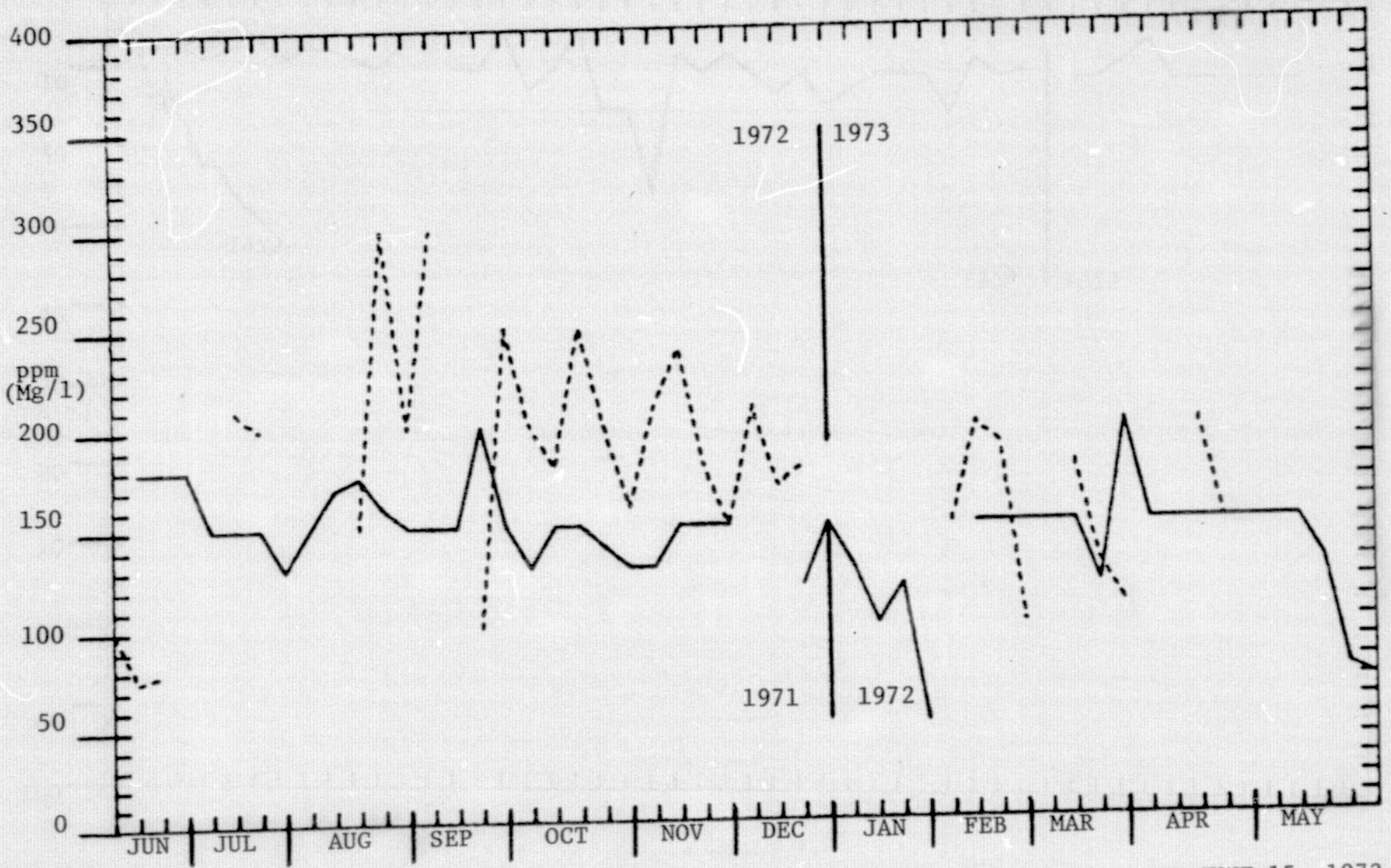

FIGURE 105. WEEKLY TOTAL DISSOLVED SOLIDS OF WHEELER FROM JUNE 6, 1971 TO JUNE 15, 1973.

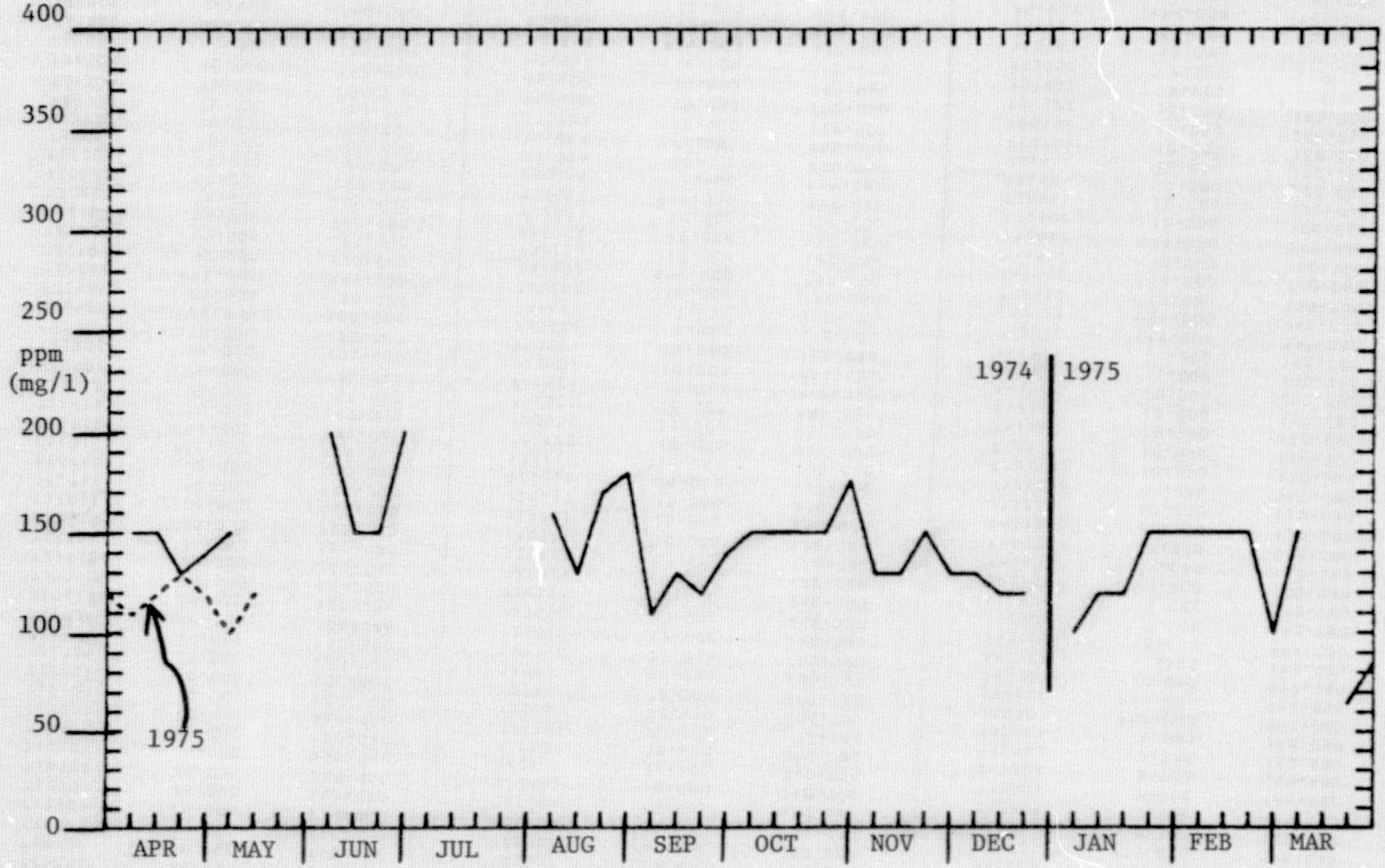

FIGURE 106. WEEKLY TOTAL DISSOLVED SOLIDS OF WHEELER FROM MARCH 27, 1974 TO MAY 28, 1975.

BROWNS FERRY

DATE	CHLORIDES	TOTAL DISSOLVED SOLIDS
710606	999.000	999.000
710906	60.000	200.000
711606	20.000	130.000
712306	20.000	160.000
713006	35.000	150.000
710707	30.000	150.000
711407	30.000	150.000
712107	25.000	120.000
712807	25.000	150.000
710408	30.000	150.000
711108	25.000	150.000
711808	30.000	170.000
712508	30.000	150.000
710109	30.000	150.000
710809	30.000	150.000
711709	25.000	100.000
712409	35.000	150.000
712909	30.000	150.000
710610	35.000	150.000
711310	30.000	150.000
712010	30.000	150.000
712710	35.000	150.000
710311	30.000	150.000
711011	20.000	150.000
711711	40.000	145.000
710712	20.000	130.000
711012	999.000	999.000
711412	999.000	999.000
712412	20.000	140.000
713112	25.000	75.000
720401	25.000	75.000
721201	25.000	100.000
721801	30.000	120.000
722401	25.000	100.000
723101	25.000	50.000
720202	999.000	999.000
720902	50.000	150.000
721402	50.000	225.000
722202	50.000	200.000
722802	75.000	150.000
720603	50.000	150.000
721303	25.000	90.000
722003	50.000	200.000
722803	50.000	200.000
720304	75.000	150.000
721304	50.000	200.000
721704	50.000	150.000
722404	50.000	150.000
720205	25.000	150.000
720805	30.000	140.000
721505	25.000	100.000
722405	25.000	100.000
723105	30.000	170.000
720606	40.000	999.000
721306	7.500	70.000

DATE	CHLORIDES	TOTAL DISSOLVED SOLIDS
722006	10.000	70.000
722706	7.500	999.000
720607	50.000	999.000
721207	10.000	200.000
721807	60.000	220.000
722507	13.000	999.000
720108	11.000	300.000
720808	25.000	999.000
721508	25.000	150.000
722208	10.000	350.000
722908	12.500	350.000
720509	15.000	300.000
721309	20.000	75.000
722009	20.000	200.000
722709	20.000	300.000
720410	20.000	200.000
721110	20.000	200.000
722010	12.500	170.000
722510	20.000	250.000
720311	12.500	180.000
721011	7.000	180.000
721511	12.500	230.000
722211	10.000	190.000
722911	25.000	150.000
720612	15.000	230.000
721312	20.000	999.000
722112	10.000	200.000
722912	10.000	999.000
730501	15.000	150.000
731001	10.000	999.000
731901	10.000	999.000
732401	10.000	999.000
733101	15.000	180.000
730802	5.000	210.000
731602	7.500	200.000
732202	15.000	75.000
732602	999.000	999.000
730103	10.000	180.000
730903	15.000	150.000
732803	10.000	100.000
733003	999.000	999.000
730604	7.500	999.000
731304	20.000	200.000
731804	11.000	150.000
732704	10.000	999.000
730405	10.000	100.000
731105	10.500	999.000
731805	12.500	999.000
732505	999.000	999.000
730106	10.000	140.000
730806	10.000	999.000
731506	15.000	999.000

BROWNS FERRY

DATE	CHLORIDE	TOTAL DISSOLVED SOLIDS
742703	8.500	125.000
740304	999.000	999.000
741004	7.500	125.000
741704	6.250	150.000
742404	5.000	125.000
740105	7.500	150.000
740805	7.500	150.000
741505	999.000	999.000
742205	9.500	125.000
742905	2.500	999.000
740506	7.500	140.000
741206	7.500	150.000
741906	7.500	150.000
742606	7.500	150.000
740307	999.000	999.000
741007	999.000	999.000
741707	10.000	999.000
742407	7.500	999.000
743107	10.000	999.000
740708	7.500	140.000
741408	5.000	140.000
742108	12.500	160.000
742808	15.000	150.000
740409	10.000	110.000
741109	10.000	150.000
741809	10.000	150.000
742509	10.000	150.000
740210	10.000	150.000
740910	10.000	150.000
741610	10.100	150.000
742310	10.000	150.000
743010	10.000	200.000
740611	11.000	150.000
741311	11.250	150.000
742012	999.000	999.000
742711	999.000	999.000
740612	10.000	120.000
741112	10.000	120.000
741812	10.000	100.000
742412	999.000	999.000
743112	10.000	100.000
750801	10.000	120.000
751501	7.500	120.000
752401	10.000	150.000
752901	10.000	150.000
750702	10.000	150.000
751202	10.000	150.000
751902	9.000	150.000
752502	7.500	115.000
750503	12.000	135.000
751203	999.000	999.000
751903	999.000	999.000
752603	6.000	95.000
750204	12.500	999.000
750904	5.000	125.000
751604	10.000	130.000
752304	5.500	125.000
753004	999.000	999.000
750705	.500	110.000
751405	5.500	105.000
752405	10.000	999.000
752805	6.000	999.000

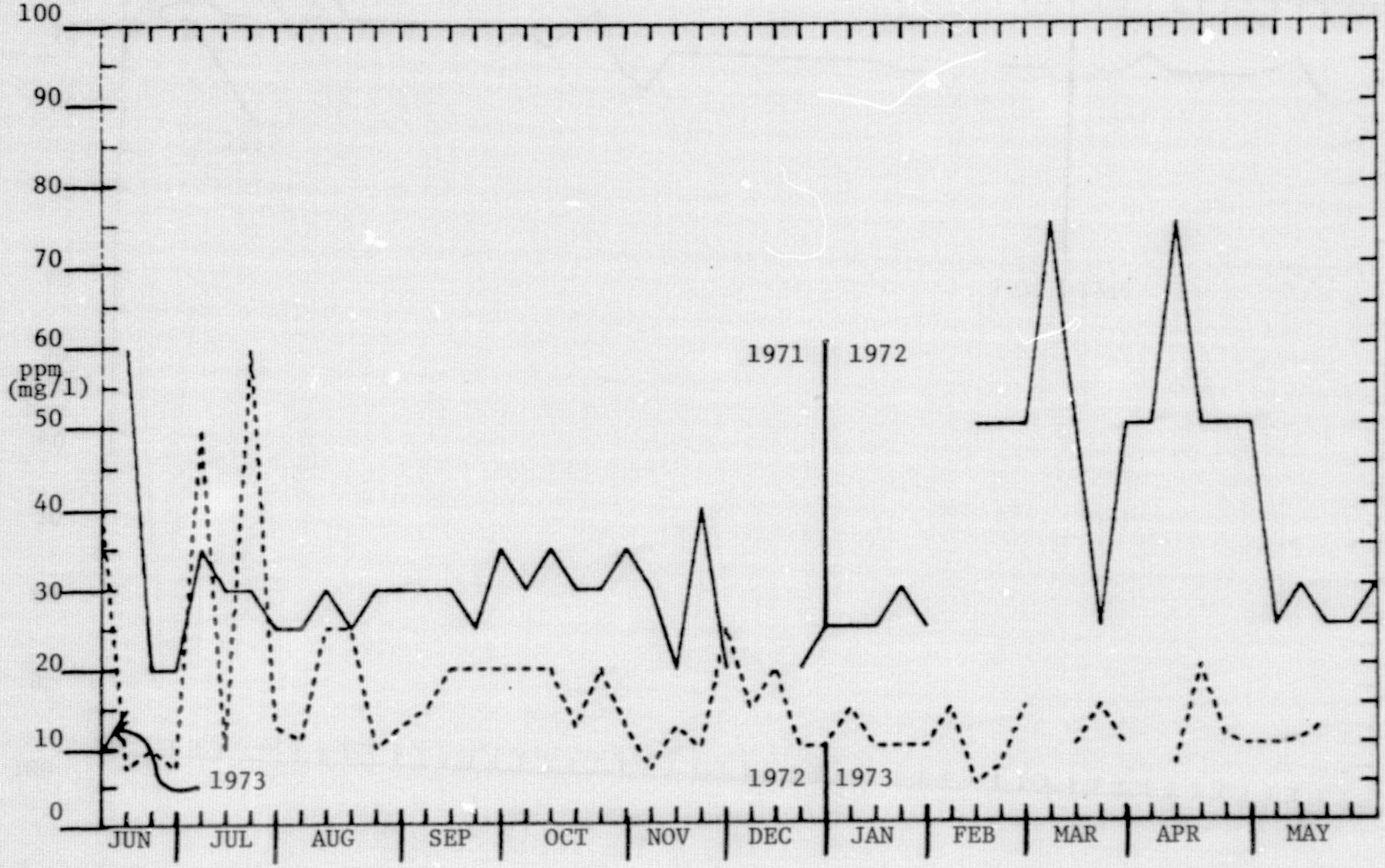

FIGURE 107. WEEKLY CHLORIDES OF BROWNS FERRY FROM JUNE 6, 1971 TO JUNE 15, 1973.

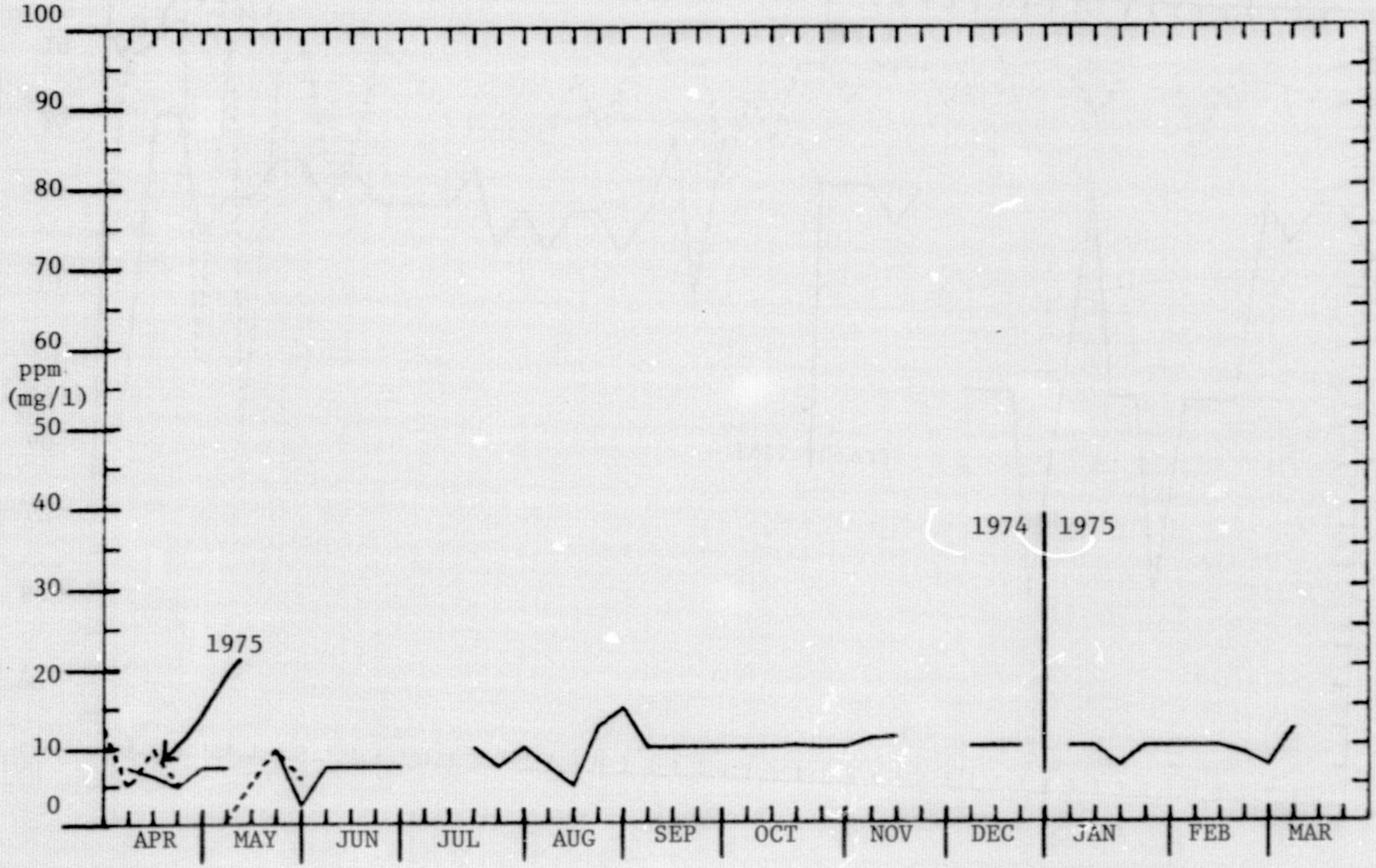

FIGURE 108. WEEKLY CHLORIDES OF BROWNS FERRY FROM MARCH 27, 1974 TO MAY 28, 1975.

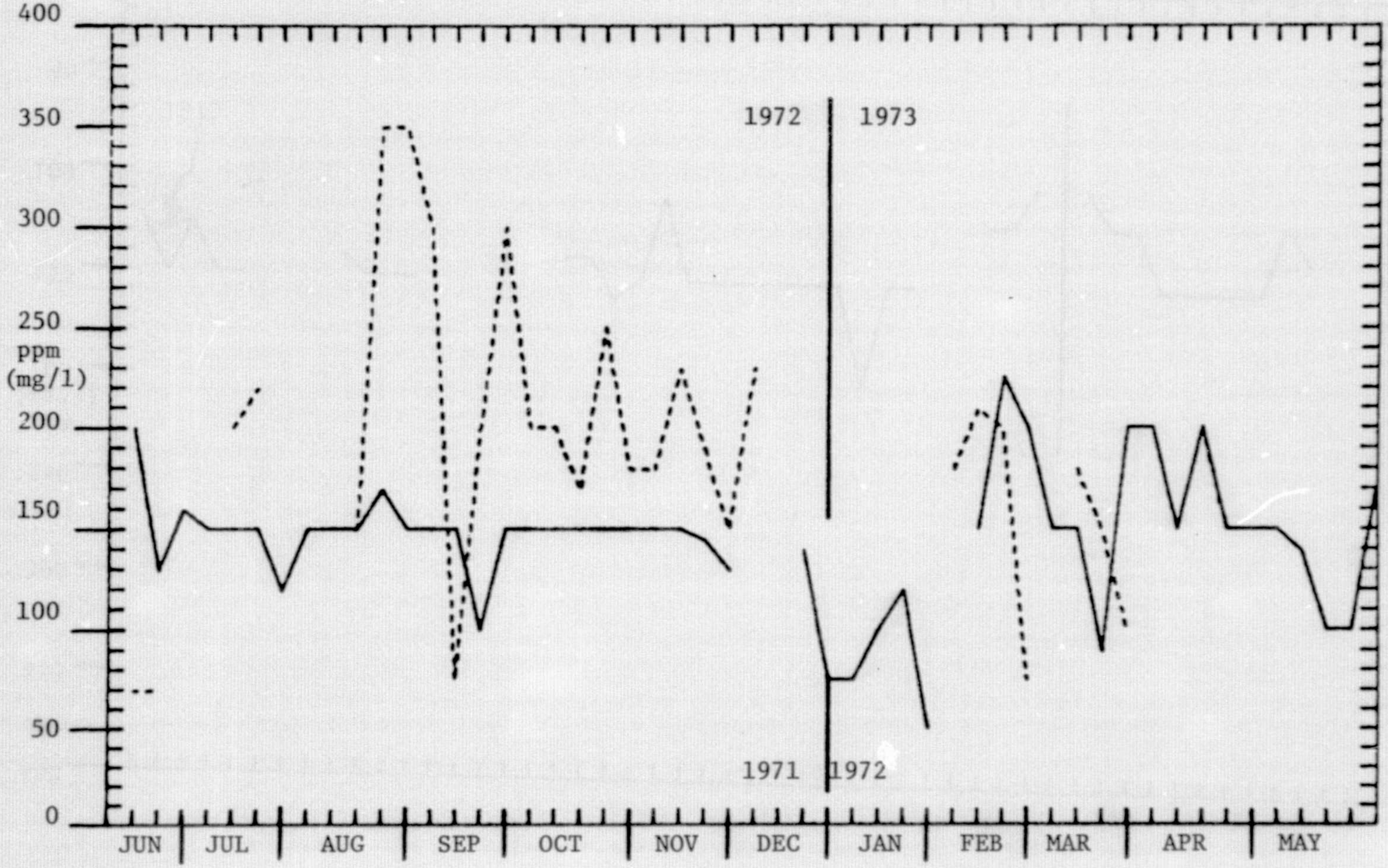

FIGURE 109. WEEKLY TOTAL DISSOLVED SOLIDS OF BROWNS FERRY FROM JUNE 6, 1971 TO JUNE 15, 1973.

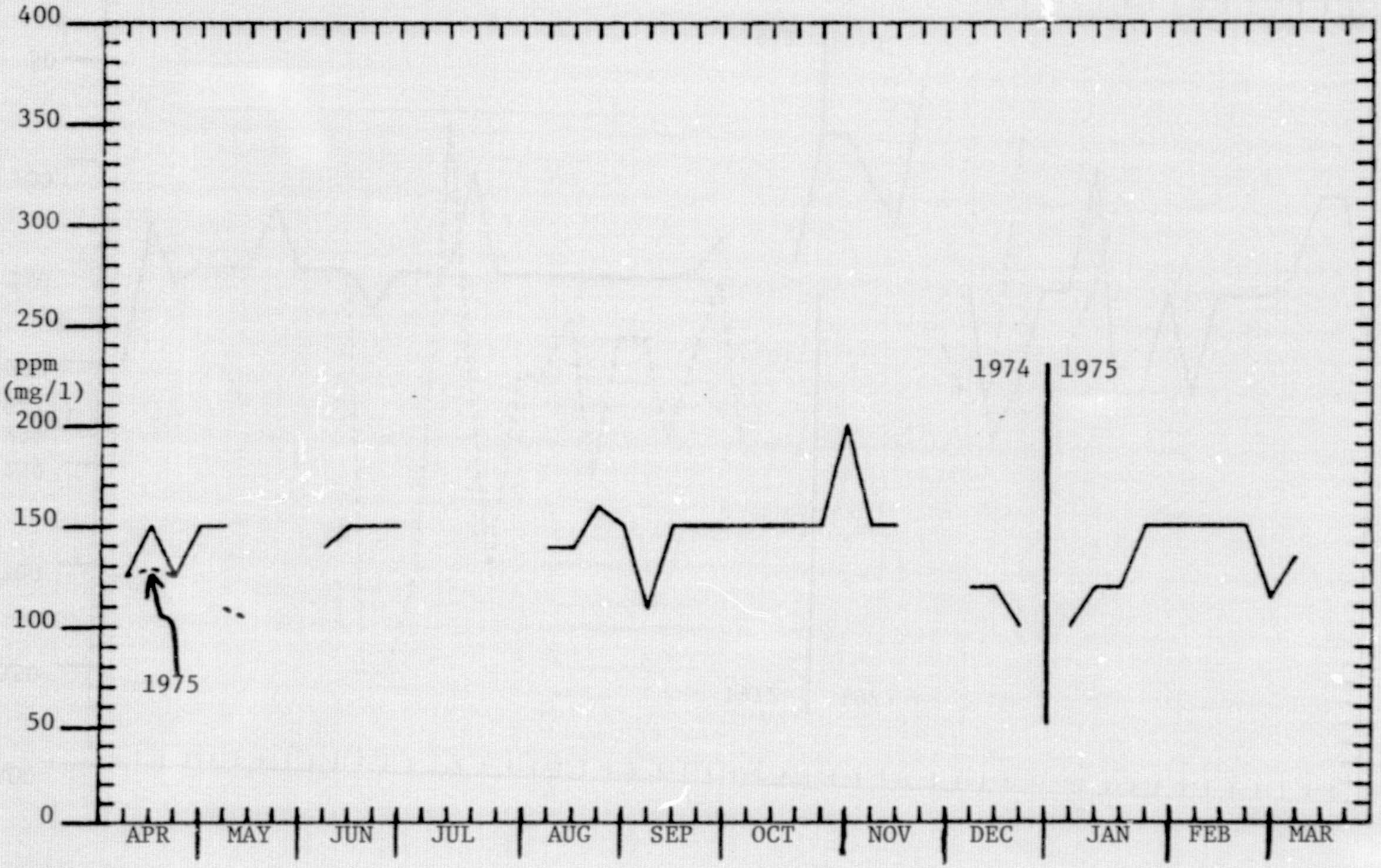

FIGURE 110. WEEKLY TOTAL DISSOLVED SOLIDS OF BROWNS FERRY FROM MARCH 27, 1974 TO MAY 28, 1975.

WHITAKER LAKE

DATE	CHLORINE	IRON
710706	.000	.000
711406	.000	.000
712106	.000	.000
712806	.000	.000
710407	.000	.000
711207	.000	.000
711907	.000	.000
712607	.000	.000
710208	.000	.000
710908	.000	.000
711608	.000	.000
712308	.000	.000
713008	888.000	.000
710609	.000	.000
711309	.000	.000
712009	888.000	.000
712809	.000	.000
710110	999.000	999.000
710510	.000	.000
711210	.000	.000
712010	.000	.000
712710	.000	.000
710111	.100	.000
710811	.000	.000
711511	.000	.000
710612	.000	.000
711012	999.000	999.000
711412	.000	999.000
712412	.000	999.000
720101	.000	.000
720301	.000	.000
721101	.000	.000
721801	999.000	999.000
722301	888.000	.000
722601	.000	.000
720202	.000	.000
720902	.000	999.000
721602	.000	999.000
722402	.200	999.000
720103	.000	999.000
720803	.000	999.000
721703	.000	999.000
722203	.000	999.000
723003	.000	999.000
720604	.000	999.000
721304	888.000	999.000
722004	.000	.250
722604	.000	999.000
720305	.000	999.000
721005	.000	.250
721705	.000	.250
722505	.000	.000
722905	.000	.400
720806	.030	.075
721506	.050	.000

DATE	CHLORINE	IRON
722206	.080	.120
722806	.040	.005
720407	888.000	999.000
721307	.040	.090
722007	.050	888.000
722607	.000	.050
720308	.065	.650
721008	.085	.150
721708	.050	.020
722408	.040	.110
723108	.070	.060
720709	.075	888.000
721509	.060	.200
721809	.060	.110
722509	.000	.120
720210	.068	.080
720910	.070	.090
721610	.060	.150
722310	.055	.000
723010	.050	.100
720611	.050	.000
721311	.060	.080
722011	.025	.110
722711	.030	.120
720412	999.000	.050
721112	.030	.210
721712	.000	.090
722612	.010	.060
730101	.008	.100
730901	.006	.090
731501	.000	.150
732201	888.000	.100
730202	888.000	.270
730502	.010	.320
731202	.005	.060
731902	.000	.190
732602	999.000	.050
730503	.020	.050
731203	.010	.060
732303	999.000	.120
733003	.000	.170
730404	.000	.120
731104	.010	.080
731604	.010	.070
732304	.012	.050
733004	999.000	.030
730705	.010	.080
731405	999.000	888.000
732205	.025	.110
732905	.000	.090
730406	.030	888.000
731106	.020	.030

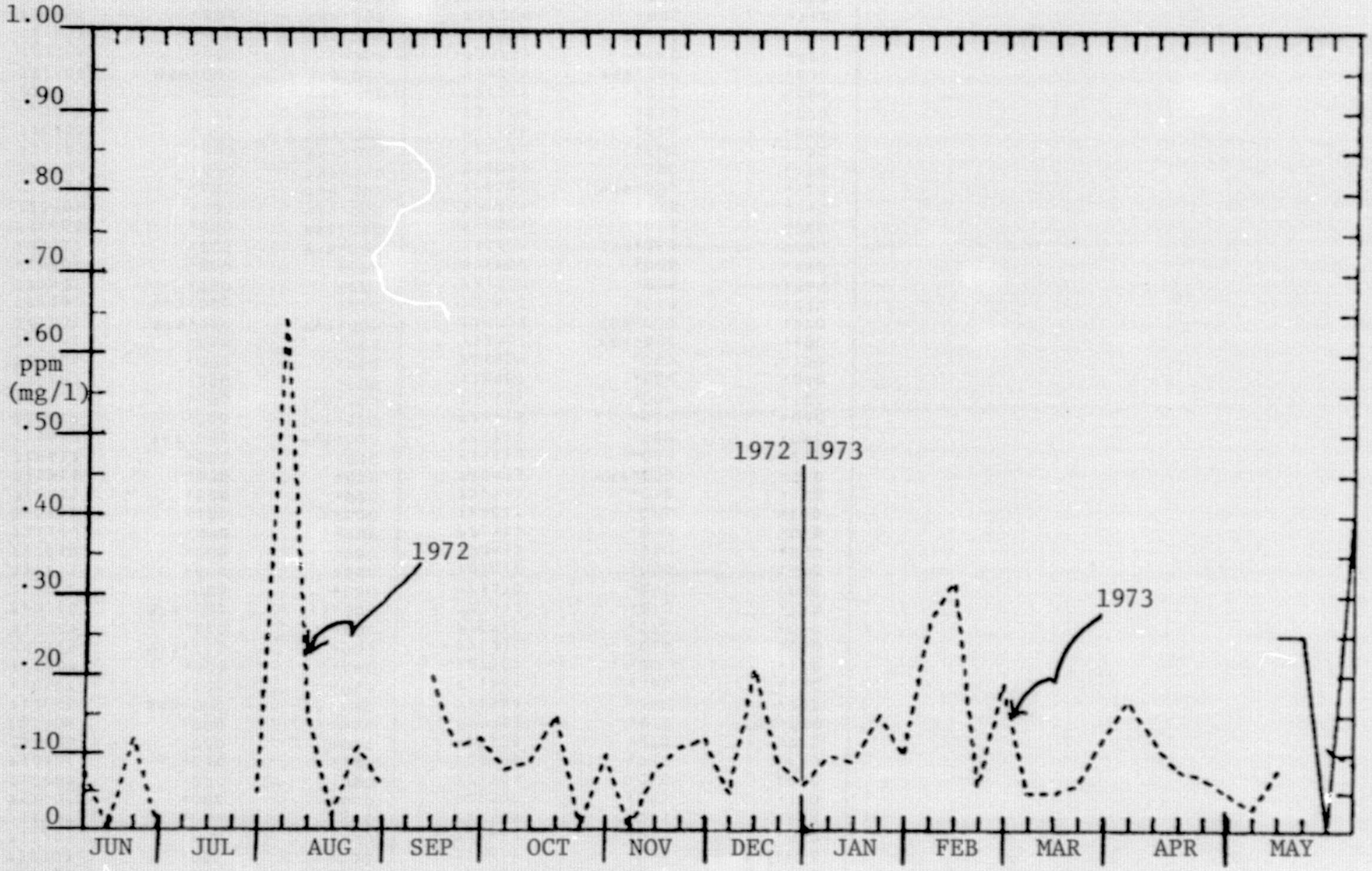

FIGURE 112. WEEKLY IRON FROM WHITACKER LAKE FROM JUNE 7, 1971 TO JUNE 11, 1973.

MIRROR LAKE

DATE	CHLORINE	IRON
710706	.000	.000
711406	.000	.000
712106	.000	.000
712806	.000	.000
710407	.000	.000
711207	.000	.000
711907	.000	.080
712607	.000	.000
710208	.000	.080
710908	.000	.000
711608	.000	.000
712308	.000	.000
713008	888.000	.000
710609	.000	.000
711309	888.000	888.000
712009	888.000	.000
712809	.000	.000
710110	999.000	999.000
710510	.000	.000
711210	888.000	.000
712010	888.000	.000
712710	888.000	.000
710111	888.000	.000
710811	.000	.000
711511	.000	.080
710612	.000	999.000
711012	999.000	999.000
711412	.000	999.000
712412	.000	999.000
720101	.000	.000
720301	888.000	.000
721101	888.000	.000
721801	999.000	999.000
722301	888.000	.080
722601	.000	.000
720202	.000	.000
720902	.000	999.000
721602	.000	999.000
722402	888.000	999.000
720103	.000	999.000
720803	.000	997.000
721703	.000	999.000
722203	.000	1.000
723003	.000	999.000
720604	.000	999.000
721304	.100	999.000
722004	.200	.250
722604	.000	999.000
720305	.000	999.000
721005	.000	2.000
721705	.000	.000
722505	.000	.250
722905	.000	999.000
720806	.010	.050
721506	.030	.050

DATE	CHLORINE	IRON
722206	.030	.410
722806	.020	.012
720407	.000	999.000
721307	888.000	888.000
722007	.020	.060
722607	.020	.100
720308	.050	.000
721008	.020	.100
721708	.040	.050
722408	.070	.000
723108	.060	.050
720709	.030	888.000
721509	.020	.100
721809	.040	.100
722509	888.000	.100
720710	.036	.100
720910	.017	.060
721610	.020	.080
722310	.015	.000
723010	.020	.100
720611	.020	.180
721311	.030	.090
722011	.022	.120
722711	.010	.110
720412	999.000	.080
721112	888.000	.050
721712	.010	.020
722612	.010	.080
730101	.000	.090
730901	.004	.110
731501	.000	.080
732201	.000	.020
730202	888.000	.110
730502	.020	.160
731202	.017	.150
731902	.000	.120
732602	999.000	.200
730503	.000	.250
731203	.010	999.000
732303	999.000	.650
733003	.000	.350
730404	.000	.230
731104	.014	.100
731604	.010	.130
732304	.011	.080
733004	999.000	.100
730705	.000	.050
731405	999.000	.080
732205	.020	.110
732905	.000	.080
730406	.020	.060
731106	888.000	.040

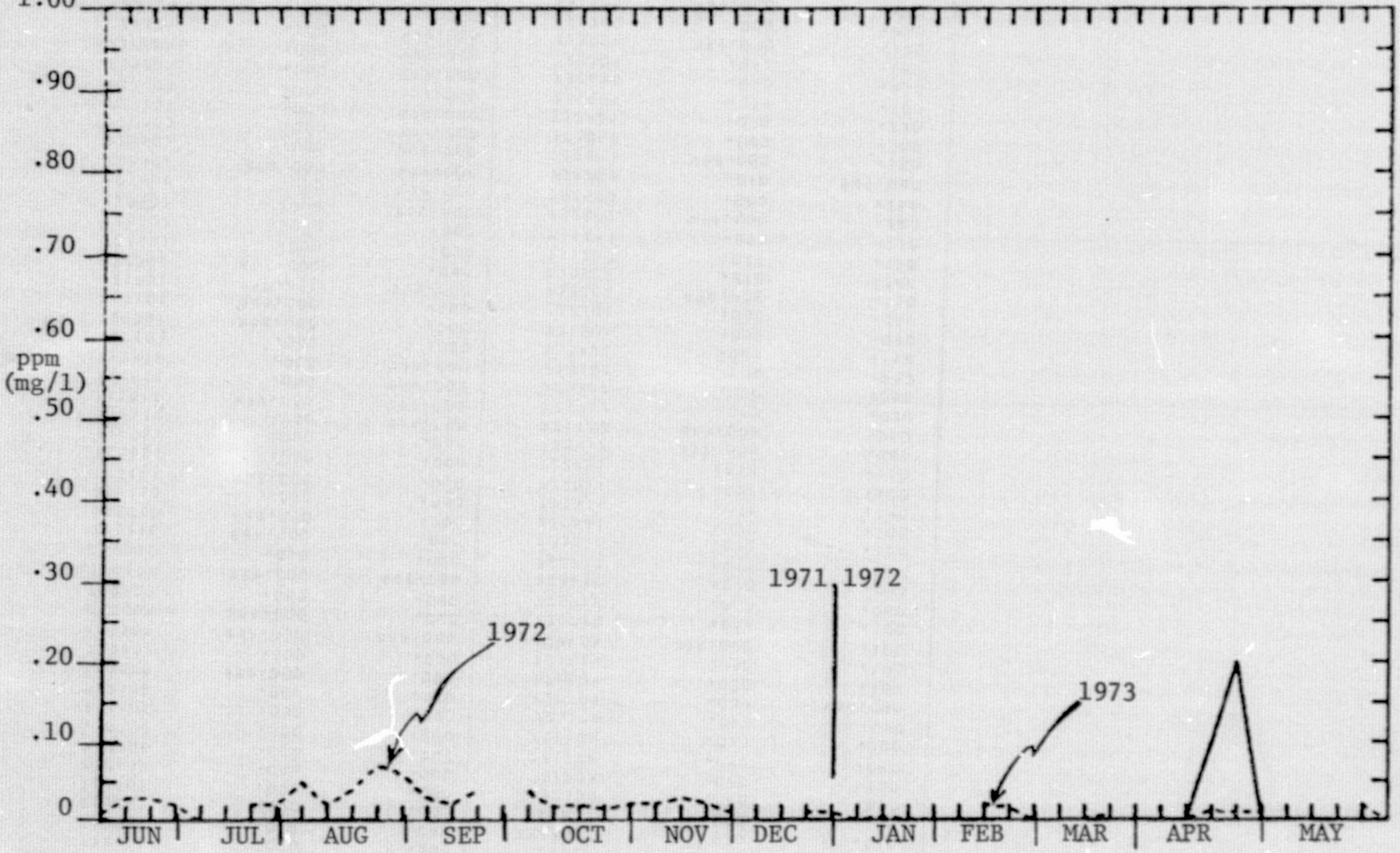

FIGURE 113. WEEKLY CHLORINE OF MIRROR LAKE FROM JUNE 7, 1971 TO JUNE 11, 1973.

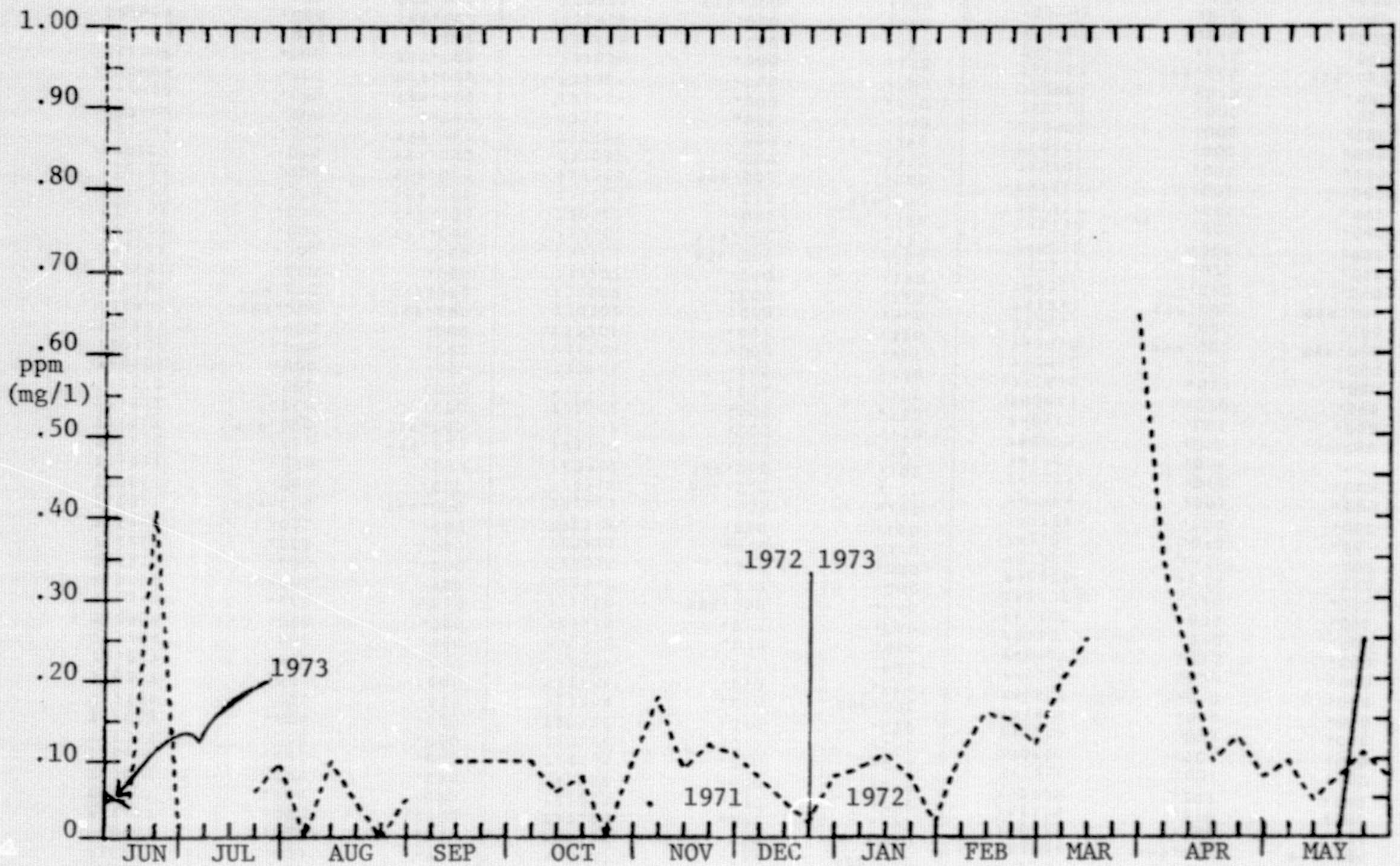

FIGURE 114. WEEKLY IRON FROM MIRROR LAKE FROM JUNE 7, 1971 TO JUNE 11, 1973.

WHITESBURG BOAT DOCK

DATE	CHLORINE	IRON
710606	999.000	999.000
711106	.000	.000
711806	.000	.000
712506	.000	.000
710207	.000	.000
710907	.000	.000
711607	.000	.000
712307	.000	.000
713007	.000	.000
710608	.000	.000
711308	.000	.000
712008	.000	.000
712708	.000	.000
710209	.000	.000
711009	.000	.000
711709	.000	.000
712409	.000	.000
710110	.000	.000
710810	.000	.000
711510	.000	.000
712210	.000	.000
712910	.000	.000
710311	999.000	999.000
710811	.000	.000
711211	.000	.000
710612	.000	999.000
711012	999.000	999.000
711412	.000	.000
712412	.000	.000
720101	.000	.000
720301	.000	.000
721101	.000	.000
721801	999.000	999.000
722301	999.000	999.000
722601	.000	.000
720202	.000	.000
720902	.000	999.000
721602	.000	999.000
722402	.000	999.000
720103	.000	999.000
720803	.000	999.000
721703	.000	999.000
722203	.000	2.000
723003	.000	999.000
720604	.000	999.000
721304	.000	999.000
722004	.000	1.000
722604	.000	999.000
720305	.000	999.000
721005	.000	.500
721705	.000	888.000
722505	.000	1.000
722905	.000	.500
720806	.005	.010
721506	.030	.050

DATE	CHLORINE	IRON
722206	.020	.100
722806	.000	.006
720907	.000	999.000
721307	.000	.100
722007	.010	888.000
722607	.010	.050
720308	.020	.150
721008	.020	.200
721708	.020	.040
722408	.010	.050
723108	.017	.040
720709	.010	.000
721509	.010	888.000
721809	.010	.050
722509	.017	.000
720210	.020	.060
720910	.017	.050
721610	888.000	.080
722310	.012	.000
723010	.020	.080
720611	.020	.120
721311	.010	.100
722011	.005	.100
722711	888.000	.170
720412	999.000	.100
721112	.000	.150
721712	.000	.190
722612	.005	.150
730101	.006	.320
730901	.005	.220
731501	.000	.200
732201	.001	.320
730202	.000	.460
730502	.000	.280
731202	.010	.190
731902	888.000	.200
732602	999.000	.120
730503	.000	.120
731203	.010	999.000
732303	999.000	1.000
733003	.000	.340
730404	.000	.290
731104	.005	.130
731604	.000	.130
732304	.000	.100
733004	.000	.130
730705	.000	.190
731405	.000	.180
732205	999.000	.180
732905	.000	.350
730406	.020	.090
731106	.000	.260

WHITESBURG BOAT DOCK

DATE	CHLORINE	IRON
742603	999.000	999.000
740204	.008	.000
740904	999.000	999.000
741604	.010	.000
742304	.010	.000
743004	999.000	999.000
740605	.000	.000
741305	.010	.000
742005	.002	.000
742705	.001	.000
740406	.001	.020
741106	.020	.000
741806	.010	.000
742506	.010	.000
740207	.030	.000
740907	.010	.000
741607	.010	.000
742307	.030	.000
743007	.020	.000
740608	.020	.050
741308	.020	.002
742208	.090	.001
742708	.000	.000
740409	.006	.000
741009	.018	.060
741709	.005	.000
742409	.018	.000
740110	.005	.000
740810	.020	.000
741510	.012	.000
742410	.001	.000
743010	999.000	999.000
740511	.020	.000
741211	999.000	999.000
742011	.010	.000
742611	.025	.050
740712	.000	.000
741112	.000	.000
741712	.005	.000
742312	.001	.000
750201	.001	.000
750801	.000	.000
751401	.000	.000
752101	.000	.000
752801	.030	.000
750402	999.000	999.000
751402	.015	.000
752002	.010	.000
752502	.010	.000
750403	.010	.000
751103	999.000	999.000
751803	.040	.000
752503	.080	.000
750104	.090	.000
750704	.010	.310
751504	.050	.210
752204	.050	.080
750105	.012	.130
750805	.025	.120
751605	.005	.000
752405	.005	.020
752805	.007	.250

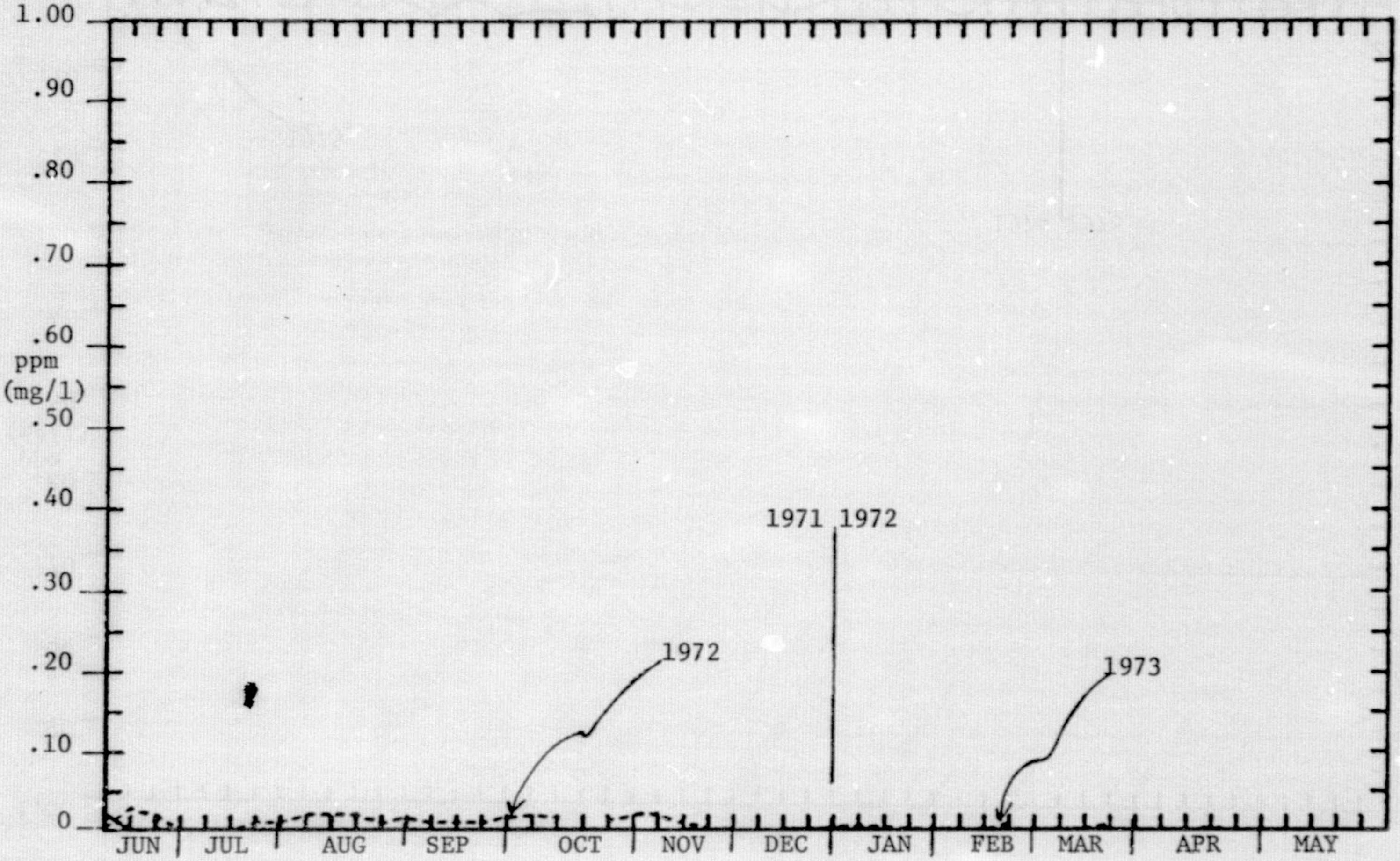

FIGURE 115. WEEKLY CHLORINE FROM WHITESBURG FROM JUNE 6, 1971 TO JUNE 11, 1973.

FIGURE 116. WEEKLY CHLORINE OF WHITESBURG FROM MARCH 26, 1974 TO MAY 28, 1975.

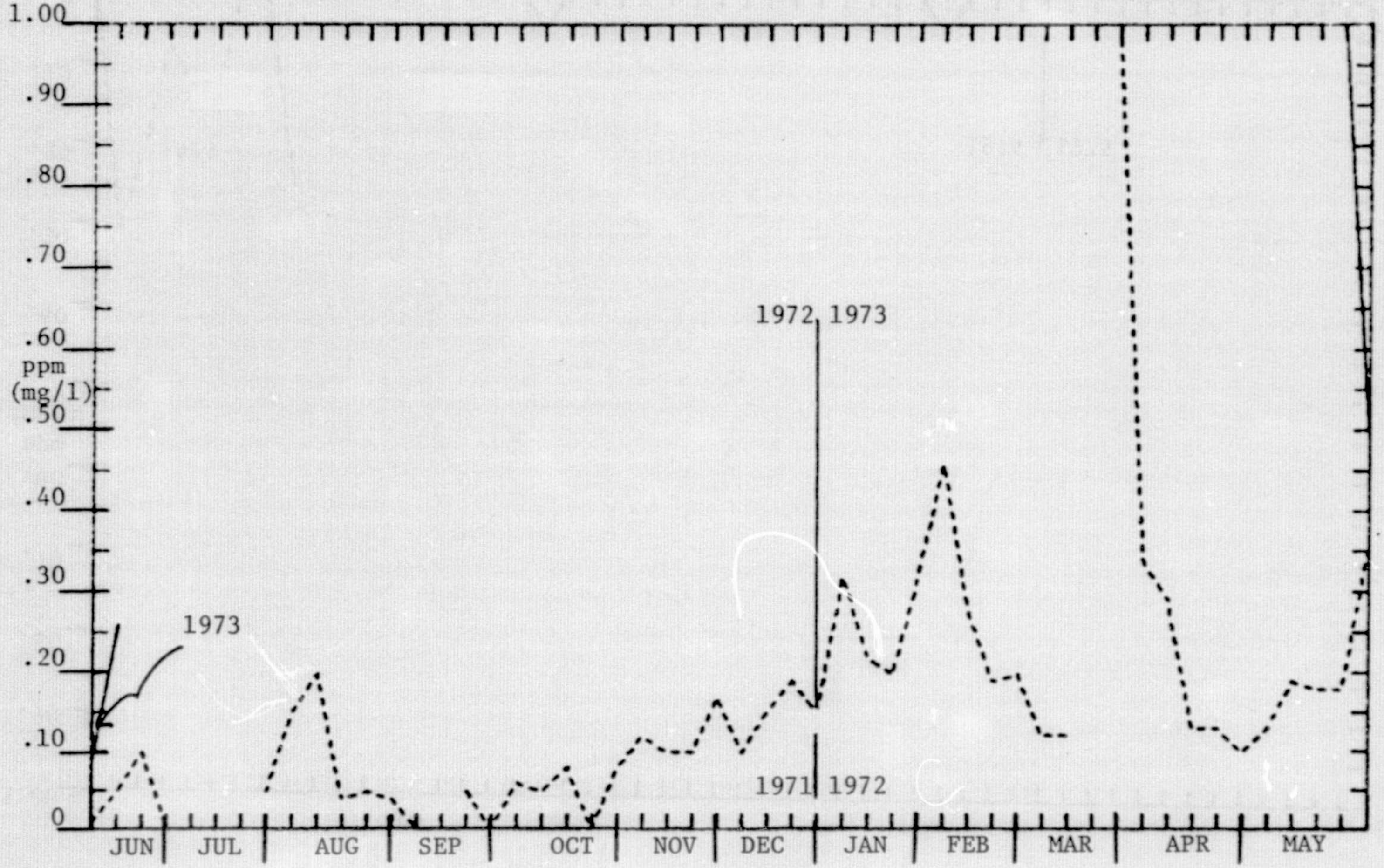

FIGURE 117. WEEKLY IRON FROM WHITESBURG FROM JUNE 6, 1971 TO JUNE 11, 1973.

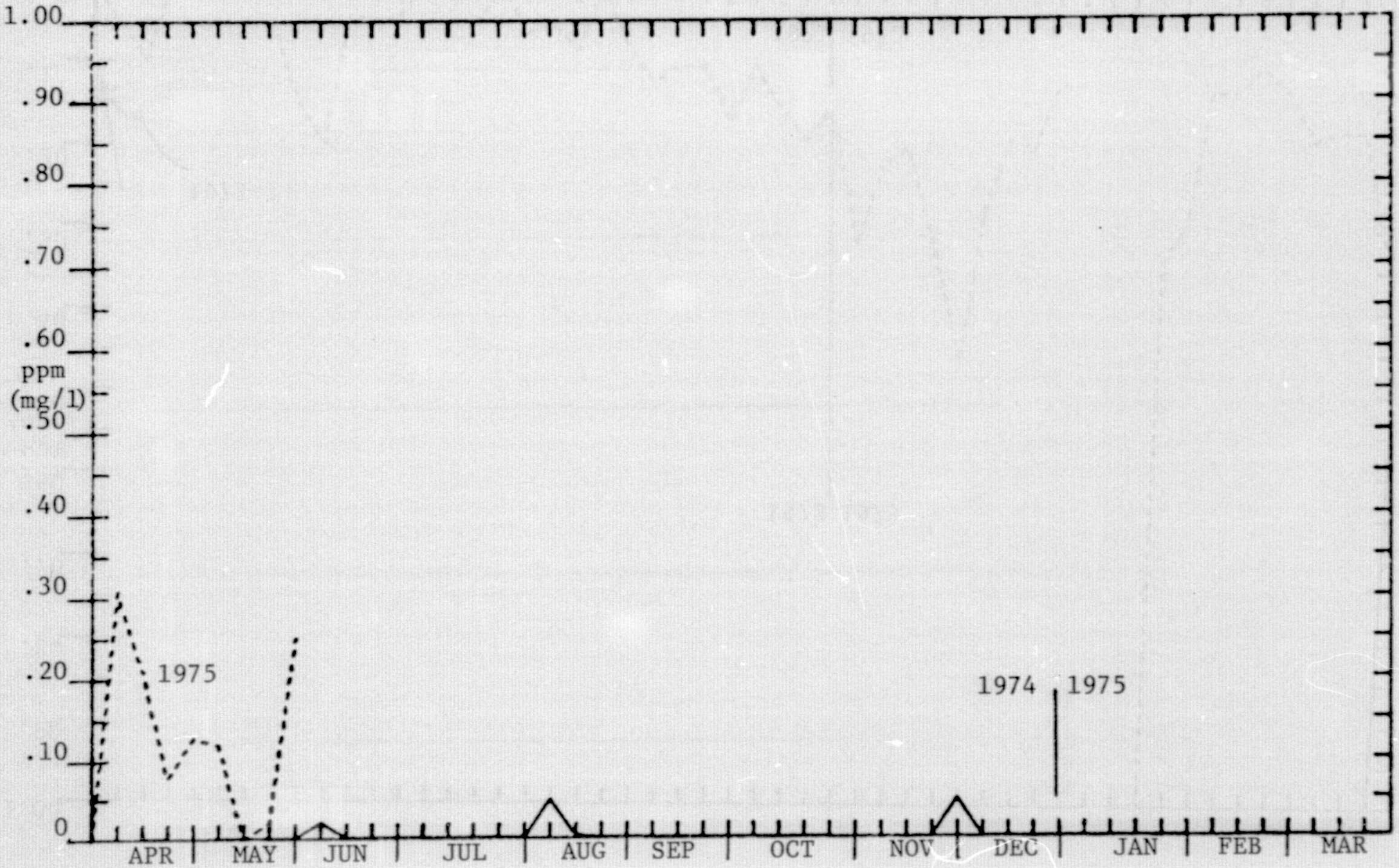

FIGURE 118. WEEKLY IRON FROM WHITESBURG FROM MARCH 6, 1974 TO MAY 28, 1975.

WHEELER-DECATUR

DATE	CHLORINE	IRON
710606	999.000	999.000
710906	.000	.000
711606	.000	.000
712306	.000	.000
713006	.000	.000
710707	.000	.000
711407	.000	.000
712107	.000	.000
712807	.000	.000
710408	.000	.000
711108	.000	.000
711808	.000	.000
712508	.000	.000
710109	.000	.000
710809	.000	.000
711709	.000	888.000
712309	.000	.000
712909	.000	.000
710610	.000	.000
711310	.000	.000
712010	.000	.000
712710	.000	.000
710311	.000	.000
711011	.000	.000
711711	.000	.000
710712	.000	999.000
711012	999.000	999.000
711412	999.000	999.000
712412	.000	.000
713112	.000	.000
720401	.000	.000
721201	.000	.000
721801	.000	999.000
722401	.000	.000
723101	.000	.000
720202	999.000	999.000
720902	.000	999.000
721402	.000	999.000
722202	.000	999.000
722802	.000	999.000
720603	.000	999.000
721303	.000	999.000
722003	.000	1.000
722803	.000	999.000
720304	.000	999.000
721304	.000	999.000
721704	.000	1.000
722404	.000	999.000
720205	.000	999.000
720805	.000	.580
721505	.000	.250
722405	.000	.750
723105	.000	.250
720606	.000	.050
721306	.050	.200

DATE	CHLORINE	IRON
722006	.005	.060
722706	.000	.005
720607	.000	999.090
721207	.010	.050
721807	.000	.050
722507	.020	.150
720108	.020	.150
720808	.017	.000
721508	.024	.100
722208	.020	.150
722908	.010	.020
720509	.010	888.000
721309	.000	.050
722009	.010	.080
722709	.010	.050
720410	.010	888.000
721110	.010	.080
722010	.010	.200
722510	.010	.050
720311	888.000	.050
721011	.000	.200
721511	.000	.100
722211	888.000	.120
722911	.005	.120
720612	.010	.230
721312	.000	.360
722112	.000	.190
722912	.000	.100
730501	.002	.210
731001	.001	.110
731901	.000	.190
732401	999.0[illegible]	999.000
733101	.000	.250
730802	.000	.280
731602	.000	.390
732202	999.000	.080
732602	999.000	999.000
730103	999.000	.210
730903	888.000	.240
732803	.000	.330
733003	999.000	999.000
730604	.000	.240
731304	.000	.180
731804	.000	.180
732704	.000	.190
730405	.000	.180
731105	999.000	.220
731805	999.000	.200
732505	888.000	.260
730106	.000	.360
730806	.000	.200
731506	.009	.170

WHEELER-DECATUR

DATE	CHLORINE	IRON
742703	.001	.000
740304	.010	999.000
741004	.001	.090
741704	.001	.000
742404	.000	.000
740105	.002	.000
740805	.080	.000
741505	999.000	999.000
742205	999.000	.000
742905	.010	.050
740506	.010	.000
741206	.001	.000
741906	.000	.000
742606	.005	.000
740307	999.000	999.000
741007	.001	.000
741707	.005	.000
742407	.020	.000
743107	.030	.001
740708	.022	.001
741408	.010	.005
742108	.020	.000
742808	.030	.001
740409	.036	.000
741109	.020	.080
741809	.020	.000
742509	.020	.000
740210	.015	.000
740910	.020	.000
741610	.015	.000
742310	.017	.000
743010	.002	.000
740611	.030	.000
741311	.010	.000
742011	.010	.000
742711	.018	.080
740612	999.000	.000
741112	.000	.000
741812	.001	.000
742412	999.000	999.000
743112	.000	.000
750801	.080	.000
751501	.000	.000
752401	.010	.000
752901	.002	.000
750702	.001	.000
751202	.001	.000
751902	.001	.000
752502	.001	.000
750503	.010	.000
751203	999.000	999.000
751903	.040	.000
752603	.010	.000
750204	.020	.320
750904	.005	.160
751604	.060	.170
752304	.013	.200
753004	.020	.100
750705	.007	.150
751405	.025	.090
752405	.009	.110
752805	.006	.110

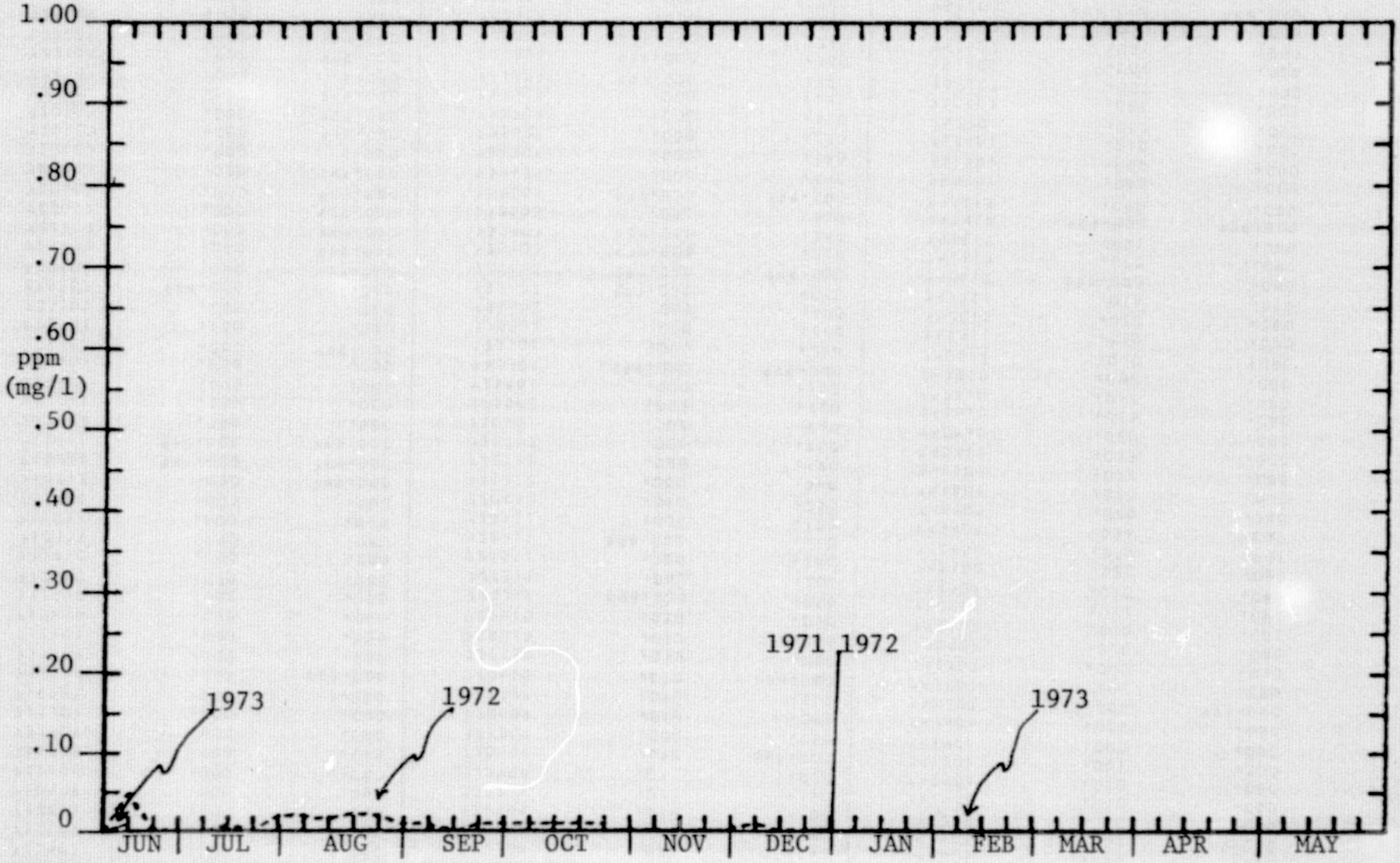

FIGURE 119. WEEKLY CHLORINE FROM WHEELER FROM JUNE 6, 1971 TO JUNE 15, 1973.

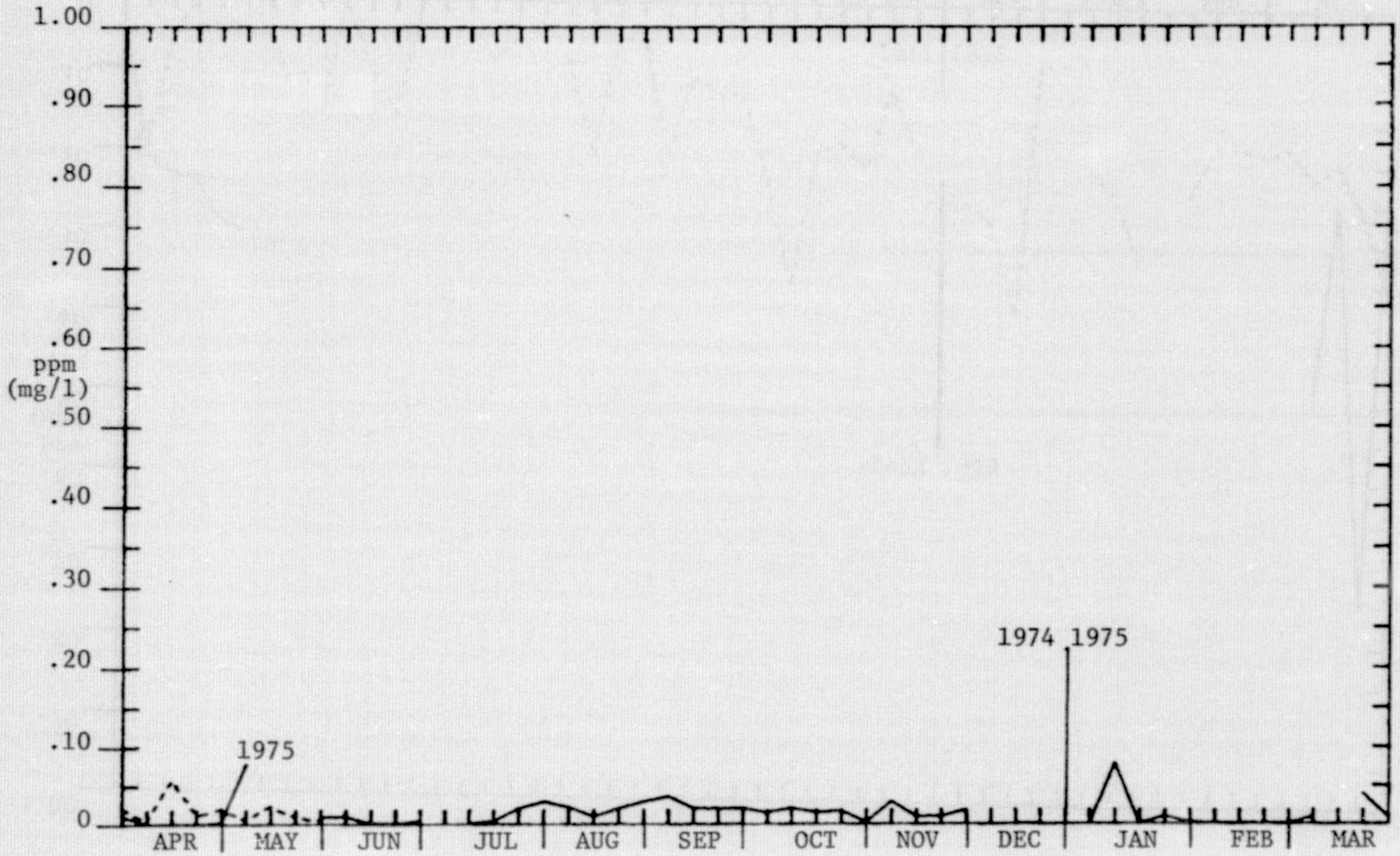

FIGURE 120. WEEKLY CHLORINE OF WHEELER FROM MARCH 27, 1974 TO MAY 28, 1975.

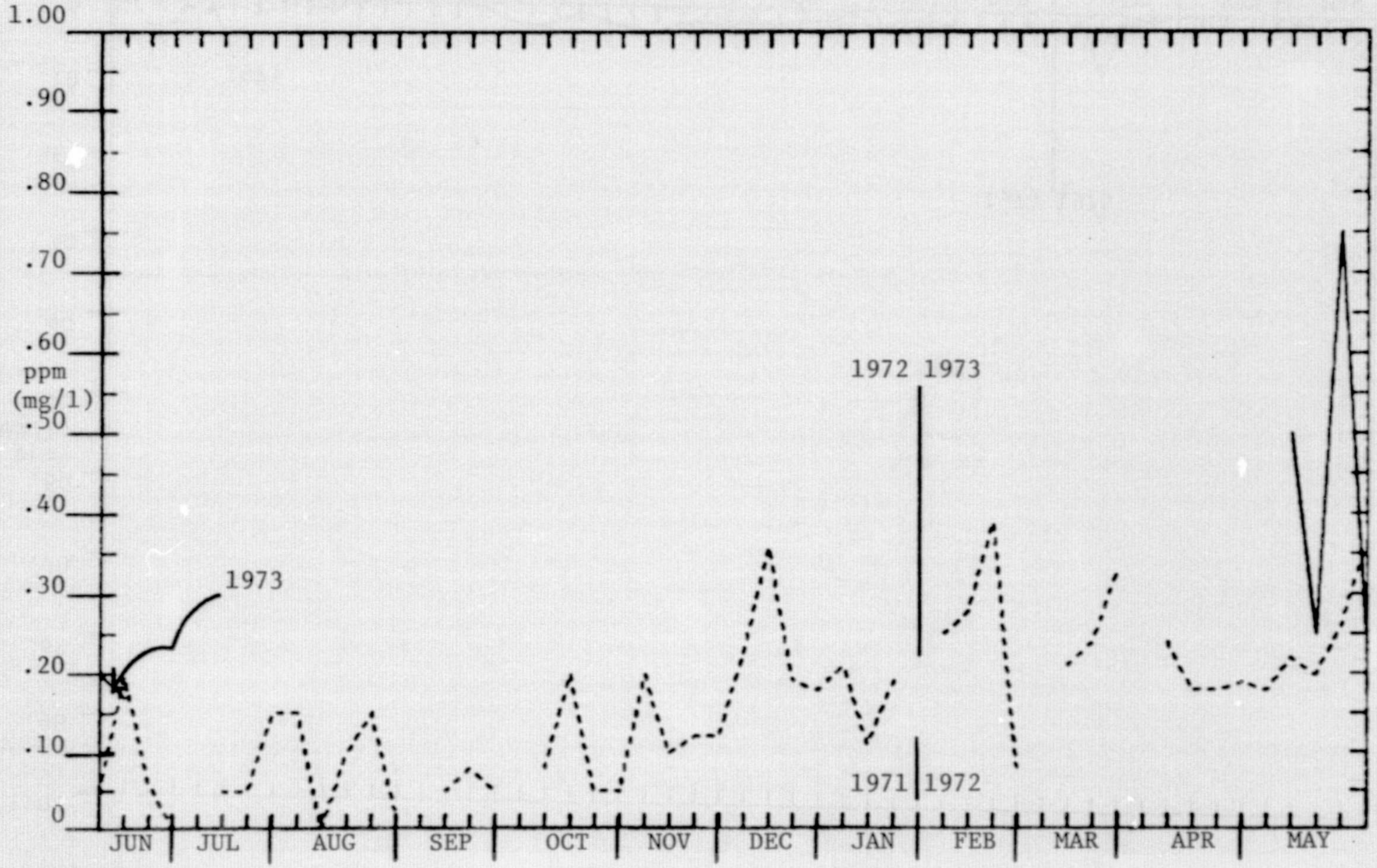

FIGURE 121. WEEKLY IRON OF WHEELER FROM JUNE 6, 1971 TO JUNE 15, 1973.

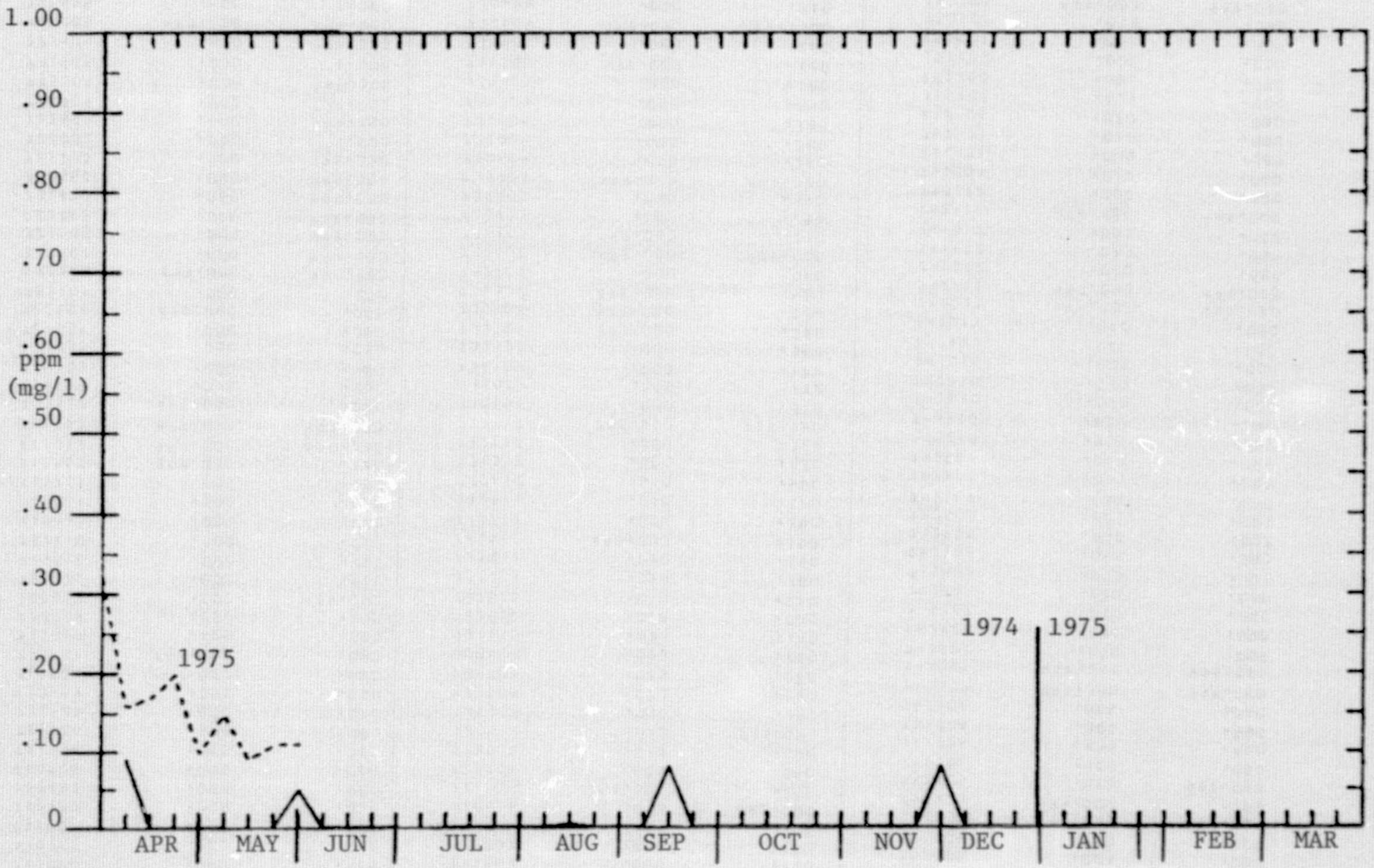

FIGURE 122. WEEKLY IRON OF WHEELER FROM MARCH 26, 1974 TO MAY 28, 1975.

BROWNS FERRY

DATE	CHLORINE	IRON
710606	999.000	999.000
710906	.000	.000
711606	.000	.000
712306	.000	.000
713006	.000	.000
710707	.000	.000
711407	.000	.000
712107	.000	.000
712807	.000	.000
710408	.000	.000
711108	.000	.000
711808	.000	.000
712508	.000	.000
710109	.000	.000
710809	.000	.000
711709	888.000	.000
712309	.000	.000
712909	.000	.000
710610	.000	888.000
711310	.000	.000
712010	.000	.000
712710	.000	.000
710311	.000	.000
711011	.000	.000
711711	.000	.000
710712	888.000	.000
711012	999.000	999.000
711412	999.000	999.000
712412	888.000	.000
713112	.000	.000
720401	.000	.000
721201	.000	.000
721801	.000	.000
722401	888.000	.000
723101	.000	.000
720202	999.000	999.000
720902	.000	999.000
721402	.000	999.000
722202	.000	999.000
722802	.000	999.000
720603	.000	999.000
721303	.000	999.000
722003	.000	.500
722803	.000	999.000
720304	.000	999.000
721304	.000	999.000
721704	.000	1.000
722404	.000	999.000
720205	888.000	999.000
720805	.000	1.000
721505	.000	999.000
722405	.000	.250
723105	.000	.250
720606	.000	999.000
721306	.030	.350

DATE	CHLORINE	IRON
722006	.001	.005
722706	.000	.009
720607	.000	999.000
721207	.001	.150
721807	.000	.110
722507	.030	.150
720108	.018	.200
720808	.018	888.000
721508	888.000	.150
722208	.006	.090
722908	.018	.000
720509	.030	888.000
721309	.030	.150
722009	.020	.180
722709	.020	.080
720410	.008	.150
721110	.020	.140
722010	.018	.080
722510	.015	.210
720311	.010	.200
721011	.010	.150
721511	888.000	.150
722211	.005	.200
722911	.010	.170
720612	.010	.600
721312	.000	.400
722112	.000	.320
722912	888.000	888.000
730501	.000	.310
731001	.000	.210
731901	.000	.190
732401	.000	.350
733101	999.000	.500
730802	888.000	.270
731602	888.000	.680
732202	.000	.080
732602	999.000	999.000
730103	999.000	.270
730903	.000	.250
732803	.050	.490
733003	999.000	999.000
730604	.000	.380
731304	.000	.200
731804	.000	.200
732704	.000	.440
730405	.000	.180
731105	999.000	.170
731805	.000	.260
732505	999.000	999.000
730106	.000	.410
730806	.000	.230
731506	.010	.040

BROWNS FERRY

DATE	CHLORINE	IRON
742703	.025	.150
740304	.010	999.000
741004	.002	.050
741704	999.000	.000
742404	.000	.000
740105	.003	.000
740805	.050	.000
741505	999.000	999.000
742205	999.000	.000
742905	.018	888.000
740506	.010	.000
741206	.002	.000
741906	.005	.000
742606	.005	.000
740307	999.000	999.000
741007	999.000	999.000
741707	.050	.000
742407	.001	.000
743107	.020	.000
740708	.020	.020
741408	.010	.001
742108	.040	.000
742808	.030	.002
740409	.001	.001
741109	.030	.050
741809	.018	.005
742509	.010	.098
740210	.015	.000
740910	.020	.000
741610	.020	.000
742310	.020	.000
743010	.002	.000
740611	.020	.000
741311	.020	.000
742011	999.000	999.000
742711	999.000	999.000
740612	.000	.000
741112	.010	.000
741812	.001	.000
742412	999.000	999.000
743112	.000	.000
750801	.020	.000
751501	.000	.000
752401	.010	.000
752901	.010	.000
750702	.001	.000
751202	.001	.000
751902	.002	.000
752502	.002	.000
750503	.018	.000
751203	999.000	999.000
751903	999.000	999.000
752603	.130	.000
750204	.020	.410
750904	.010	.150
751604	.500	.150
752304	.017	.100
753004	999.000	999.000
750705	.005	.140
751405	.030	.180
752405	.008	.095
752805	.009	.240

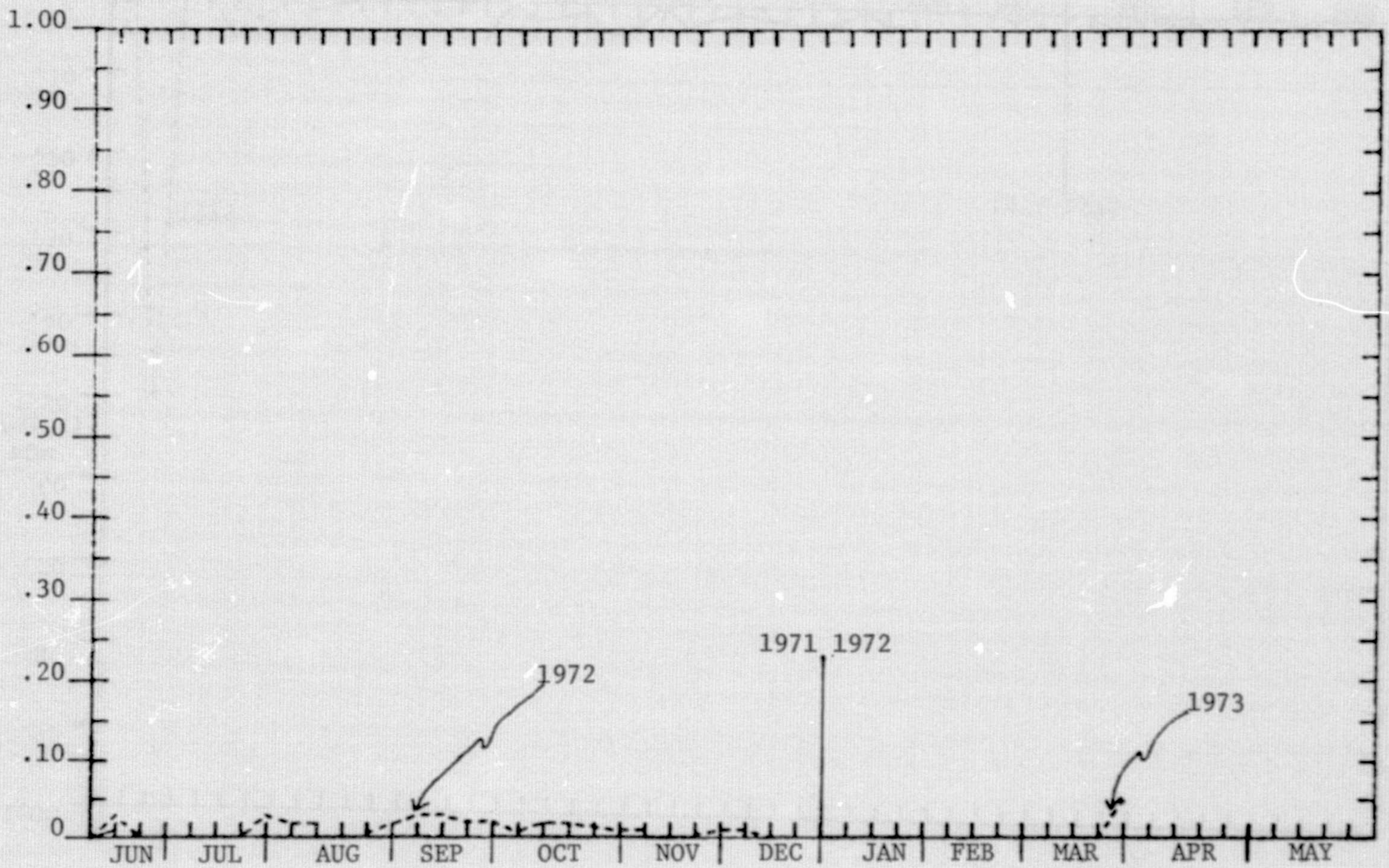

FIGURE 123. WEEKLY CHLORINE FROM BROWNS FERRY FROM JUNE 6, 1971 TO JUNE 15, 1973.

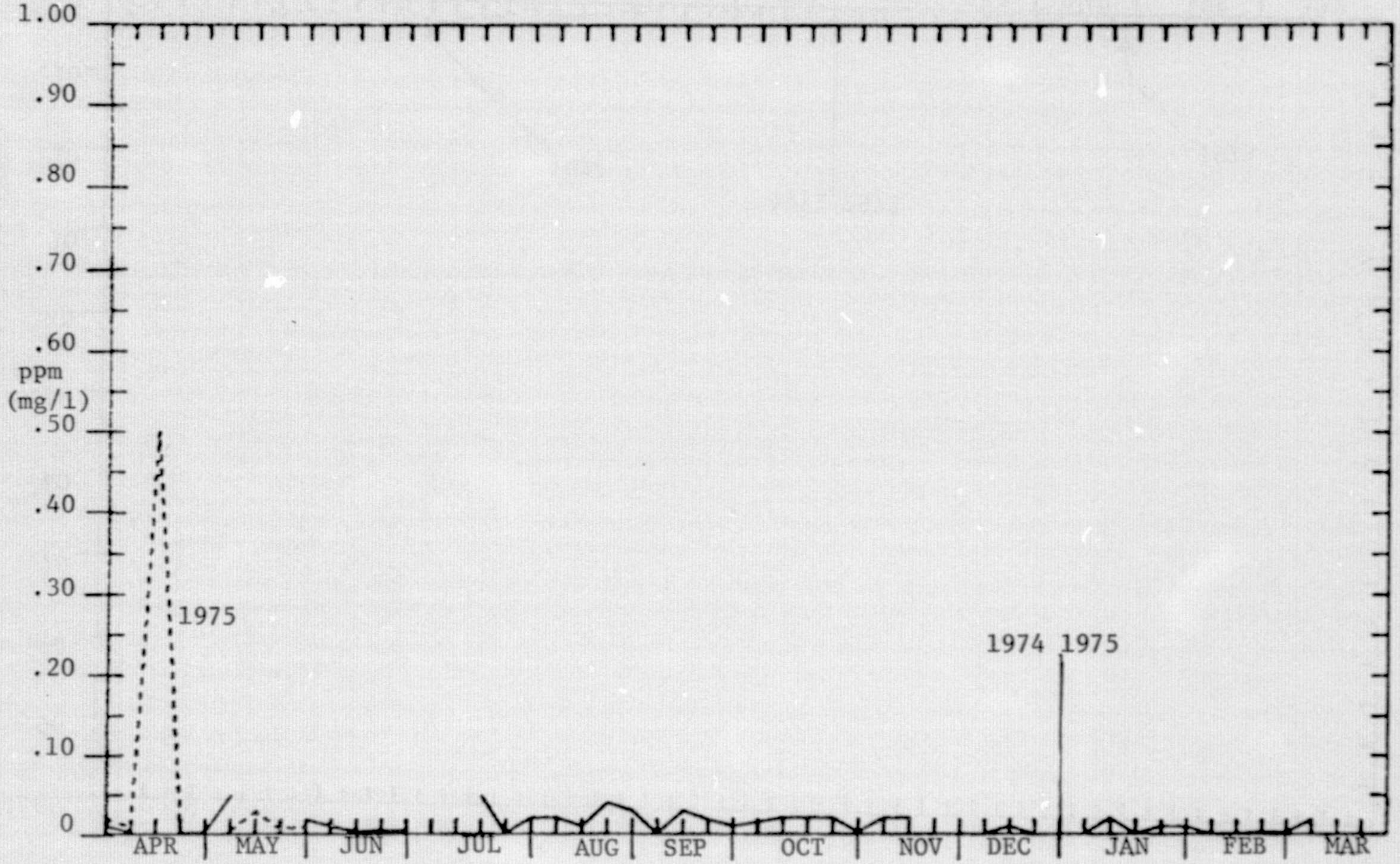

FIGURE 124. WEEKLY CHLORINE OF BROWNS FERRY FROM MARCH 27, 1974 TO MAY 28, 1975.

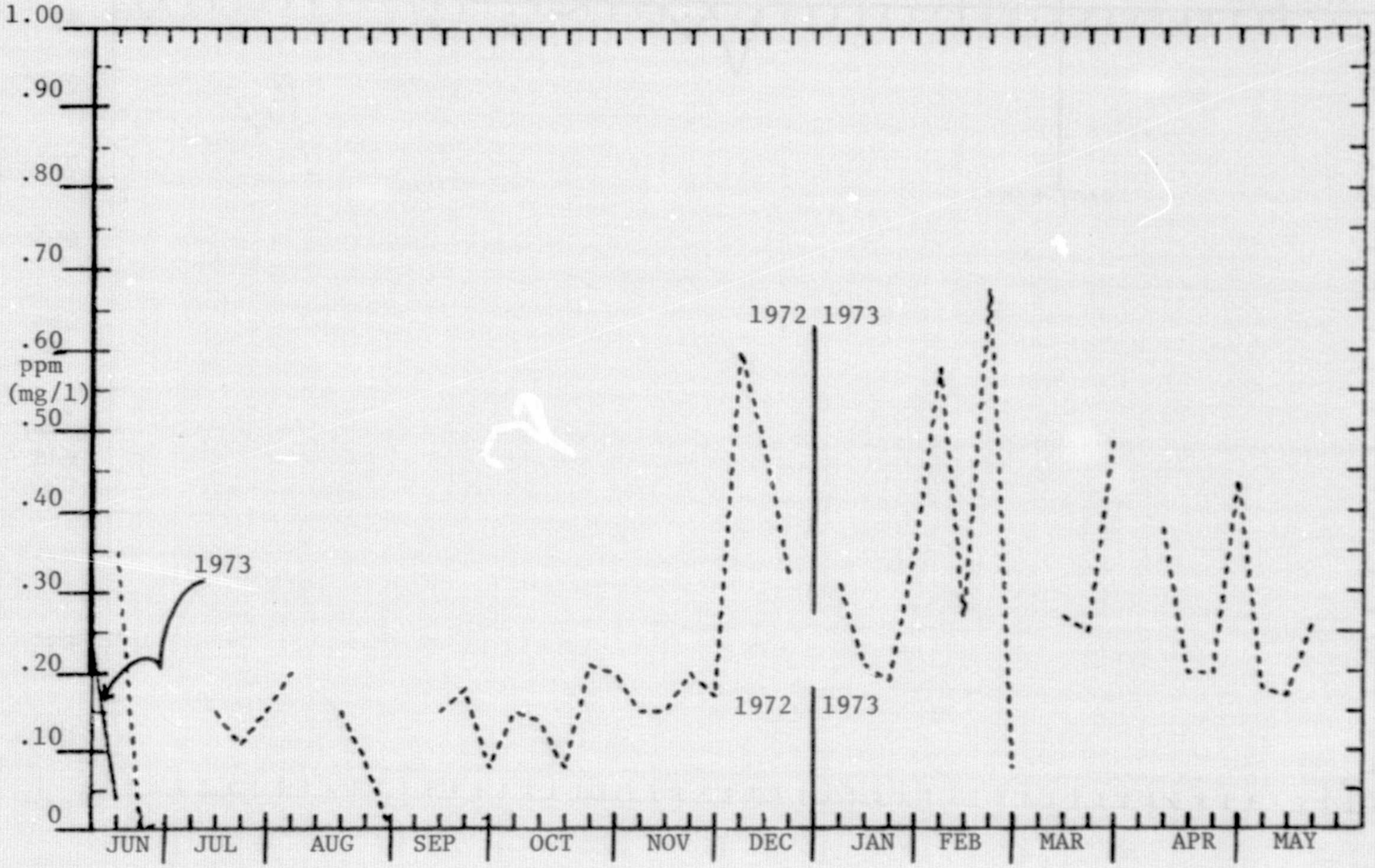

FIGURE 125. WEEKLY IRON OF BROWNS FERRY FROM JUNE 6, 1971 TO JUNE 15, 1973.

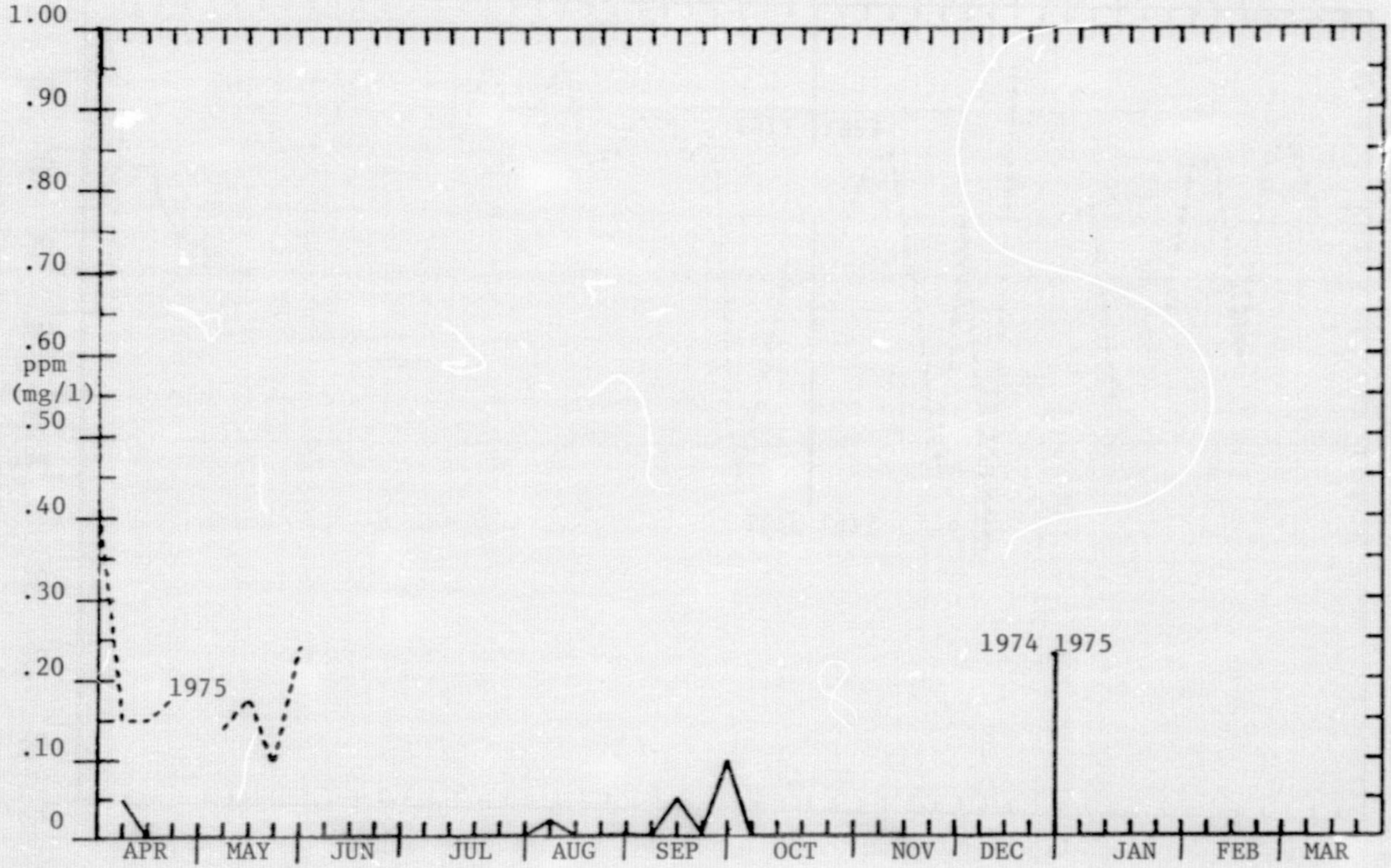

FIGURE 126. WEEKLY IRON OF BROWNS FERRY FROM MARCH 26, 1974 TO MAY 28, 1975.

WHITAKER LAKE

DATE	CHROMIUM	COPPER
710706	.000	.000
711406	.000	.000
712106	.000	.000
712806	.000	.000
710407	.000	.000
711207	.000	.000
711907	.000	.000
712607	.000	.000
710208	.000	.000
710908	.000	.000
711608	.000	.000
712308	.000	.000
713008	.000	.000
710609	.000	.000
711309	.000	.000
712009	.000	.000
712809	.000	.000
710110	999.000	999.000
710510	.000	.000
711210	.000	.000
712010	.000	.000
712710	.000	.000
710111	.000	.000
710811	.000	.000
711511	.000	.000
710612	999.000	999.000
711012	999.000	999.000
711412	999.000	999.000
712412	999.000	999.000
720101	.000	.000
720301	.000	.000
721101	.000	.000
721801	999.000	999.000
722301	.000	.000
722601	.000	.000
720202	.000	.000
720902	999.000	999.000
721602	999.000	999.000
722402	999.000	999.000
720103	999.000	999.000
720803	999.000	999.000
721703	999.000	999.000
722203	999.000	.000
723003	999.000	999.000
720604	999.000	999.000
721304	999.000	999.000
722004	.000	.000
722604	999.000	999.000
720305	999.000	999.000
721005	999.000	999.000
721705	999.000	999.000
722505	999.000	999.000
722905	999.000	999.000
720806	.020	.015
721506	.000	.000

DATE	CHROMIUM	COPPER
722206	.000	.000
722806	999.000	999.000
720407	999.000	999.000
721307	.000	888.000
722007	.000	.000
722607	.000	.000
720308	.000	.280
721008	.000	.000
721708	.000	.000
722408	.000	.050
723108	.100	.000
720709	888.000	.000
721509	.000	.000
721809	.000	.000
722509	.000	.000
720210	.000	.000
720910	.000	.000
721610	.000	.000
722310	.000	.000
723010	999.000	.000
720611	.000	.000
721311	.010	.060
722011	.000	.000
722711	999.000	.000
720412	.000	.000
721112	.000	.000
721712	.040	.000
722612	999.000	999.000
730101	.000	.000
730901	.000	.000
731501	999.000	999.000
732201	.020	.080
730202	999.000	.000
730502	999.000	.000
731202	999.000	999.000
731902	999.000	.000
732602	.000	.000
730503	.000	.000
731203	.000	.000
732303	999.000	999.000
733003	999.000	999.000
730404	999.000	999.000
731104	999.000	999.000
731604	999.000	999.000
732304	999.000	999.000
733004	999.000	999.000
730705	999.000	999.000
731405	999.000	999.000
732205	999.000	999.000
732905	.000	.000
730406	999.000	999.000
731106	999.000	999.000

ORIGINAL PAGE IS
OF POOR QUALITY

MIRROR LAKE

DATE	CHROMIUM	COPPER	DATE	CHROMIUM	COPPER
710706	.000	.025	722206	.000	.080
711406	.000	.080	722806	.000	.080
712106	.000	.080	720907	999.000	999.080
712806	.000	.080	721307	.020	.050
710907	.000	.080	722007	.000	.080
711207	.000	.080	722607	.000	.080
711907	.000	.080	720308	.000	.080
712607	.000	.080	721008	.000	.080
710208	.000	.080	721708	.000	.080
710908	.000	.080	722408	.000	.180
711608	.000	.080	723108	.000	.080
712308	.000	.080	720709	.010	.080
713008	.000	.080	721509	.000	.080
710609	.000	.080	721809	.000	.080
711309	.000	.080	722509	.000	.000
712009	.000	.080	720210	.000	.080
712809	.000	.080	720910	.000	.080
710110	999.000	999.080	721610	.020	888.080
710510	.000	.000	722310	.000	.080
711210	.000	.080	723010	888.000	.000
712010	.000	.080	720611	.000	.080
712710	.000	.080	721311	.020	.020
710111	.000	.080	722011	.020	.020
710811	.000	.000	722711	999.000	999.080
711511	.000	.080	720412	.000	.080
710612	999.000	999.080	721112	.025	.030
711012	999.000	999.080	721712	.010	.080
711912	999.000	999.080	722612	.009	.000
712912	999.000	999.080	730101	.000	.000
720101	.000	.080	730901	.000	.080
720301	.000	.080	731501	999.000	999.080
721101	.000	.000	732201	.005	.040
721801	999.000	999.080	730202	999.000	999.000
722301	.000	.000	730502	.020	999.080
722601	.000	.000	731202	999.000	999.080
720202	.000	.080	731902	888.000	.080
720902	999.000	999.000	732602	.000	.080
721602	999.000	999.080	730503	.000	.080
722402	999.000	999.000	731203	.000	.080
720103	999.000	999.000	732303	999.000	999.080
720803	999.000	999.000	733003	999.000	999.080
721703	999.000	999.080	730404	999.000	999.080
722203	.000	.080	731104	999.000	999.080
723003	999.000	999.080	731604	999.000	999.080
720604	999.000	999.080	732304	999.000	999.000
721304	999.000	999.000	733004	999.000	999.080
722004	.000	.080	730705	999.000	999.080
722604	999.000	999.080	731405	999.000	999.000
720305	999.000	999.080	732205	999.000	999.000
721005	999.000	999.080	732905	.000	.080
721705	999.000	999.000	730406	999.000	999.000
722505	999.000	999.080	731106	999.000	999.080
722905	999.000	999.000			
720806	.020	.010			
721506	.000	.000			

WHITESBURG BOAT DOCK

DATE	CHROMIUM	COPPER
710606	999.000	999.000
711106	.000	.000
711806	.000	.000
712506	.000	.000
710207	.000	.000
710907	.000	.000
711607	.000	.000
712307	.000	.000
713007	.000	.000
710608	.000	.000
711308	.000	.000
712008	.000	.000
712708	.000	.000
710209	.000	.000
711009	.000	.000
711709	.000	.000
712409	.000	.000
710110	.000	.000
710810	.000	.000
711510	.000	.000
712210	.000	.000
712910	.000	.000
710311	999.000	999.000
710811	.000	.000
711211	.000	.000
710612	999.000	999.000
711012	999.000	999.000
711412	999.000	999.000
712412	.000	.000
720101	.000	.000
720301	.000	.000
721101	.000	.000
721801	999.000	999.000
722301	999.000	999.000
722601	.000	.000
720202	.000	.000
720902	999.000	999.000
721602	999.000	999.000
722402	999.000	999.000
720103	999.000	999.000
720803	999.000	999.000
721703	999.000	999.000
722203	.000	.000
723003	999.000	999.000
720604	999.000	999.000
721304	999.000	999.000
722004	.000	.000
722604	999.000	999.000
720305	999.000	999.000
721005	999.000	999.000
721705	999.000	999.000
722505	999.000	999.000
722905	999.000	999.000
720806	.020	.000
721506	.000	.000

DATE	CHROMIUM	COPPER
722206	.000	.000
722806	.000	.000
720407	999.000	999.000
721307	.000	.000
722007	.000	.000
722607	.000	.000
720308	.000	.000
721008	.000	.000
721708	.000	.000
722408	.025	.100
723108	999.000	.000
720709	999.000	999.000
721509	.000	.000
721809	.000	.000
722509	.000	.000
720210	.000	.000
720910	.000	.000
721610	.010	.000
722310	.000	.000
723010	.000	.000
720611	.000	.000
721311	.000	.000
722011	.020	.000
722711	.010	.000
720412	.000	.000
721112	.000	.000
721712	.020	.010
722612	999.000	999.000
730101	.000	.000
730901	.000	.000
731501	999.000	999.000
732201	.010	.110
730202	.000	.000
730502	999.000	999.000
731202	999.000	999.000
731902	.000	.000
732602	.000	.000
730503	.000	.000
731203	.000	.000
732303	999.000	999.000
733003	999.000	999.000
730404	999.000	999.000
731104	999.000	999.000
731604	999.000	999.000
732304	999.000	999.000
733004	999.000	999.000
730705	999.000	999.000
731405	999.000	999.000
732205	999.000	999.000
732905	.000	.000
730406	999.000	999.000
731106	999.000	999.000

WHITESBURG BOAT DOCK

DATE	CHROMIUM	COPPER
742603	999.000	999.000
740204	999.000	999.000
740904	999.000	999.000
741604	.000	.000
742304	.000	.000
743004	999.000	999.000
740605	.000	.000
741305	.000	.000
742005	.000	.000
742705	.000	.000
740406	.010	.000
741106	.000	.000
741806	.000	.000
742506	.025	.000
740207	.000	.000
740907	.000	.000
741607	.050	.050
742307	.040	.000
743007	.001	.000
740608	.050	.000
741308	.020	.002
742208	.000	.000
742708	.001	.000
740409	.020	888.000
741009	.000	.000
741709	.000	.000
742409	.000	.000
740110	.000	.000
740810	.000	.000
741510	.000	.000
742410	.000	.000
743010	999.000	999.000
740511	.000	.000
741211	999.000	999.000
742011	.000	.000
742611	.002	.000
740712	.000	.000
741112	.000	.000
741712	.000	.000
742312	.000	.000
750201	.000	.000
750801	.000	.000
751401	.000	.000
752101	.000	.000
752801	.000	.000
750402	999.000	999.000
751402	.000	.000
752002	.000	.000
752502	.000	.000
750403	.000	.000
751103	999.000	999.000
751803	.000	.000
752503	.000	.000
750104	.000	.000
750704	.000	.000
751504	.000	.000
752204	.000	.000
750105	.000	.000
750805	.000	.000
751605	.000	.000
752405	.000	.000
752805	.000	.000

ORIGINAL PAGE IS OF POOR QUALITY

216

WHEELER-DECATUR

DATE	CHROMIUM	COPPER
710606	999.000	999.000
710906	.000	.000
711606	.000	.000
712306	.000	.000
713006	.000	.000
710707	.000	.000
711407	.000	.000
712107	.000	.000
712807	.000	.000
710408	.000	.000
711108	.000	.000
711808	.000	.000
712508	.000	.000
710109	.000	.000
710809	.000	.000
711709	.000	.000
712309	.000	.000
712909	.000	.000
710610	.000	.000
711310	.000	.000
712010	.000	.000
712710	.000	.000
710311	.000	.000
711011	.000	.000
711711	.000	.000
710712	.000	.000
711012	999.000	999.000
711412	999.000	999.000
712412	.000	.000
713112	.000	.000
720401	.000	.000
721201	.000	.000
721801	999.000	999.000
722401	.000	.000
723101	.000	.000
720202	999.000	999.000
720902	999.000	999.000
721402	999.000	999.000
722202	999.000	999.000
722802	999.000	999.000
720603	999.000	999.000
721303	999.000	999.000
722003	.000	.000
722803	999.000	999.000
720304	999.000	999.000
721304	999.000	999.000
721704	.000	.000
722404	999.000	999.000
720205	999.000	999.000
720805	999.000	999.000
721505	999.000	999.000
722405	999.000	999.000
723105	999.000	999.000
720606	999.000	999.000
721306	.000	.000

DATE	CHROMIUM	COPPER
722006	.000	.000
722706	.000	.000
720607	999.000	999.000
721207	.000	.000
721807	.000	.000
722507	.000	.000
720108	.000	.000
720808	.000	.000
721508	.000	.000
722208	.025	.050
722908	.025	.000
720509	.000	.000
721309	.000	.000
722009	.000	.000
722709	.000	.000
720410	.000	.000
721110	.000	.000
722010	.000	.000
722510	.000	.000
720311	.020	.000
721011	.010	.000
721511	.025	.040
722211	.000	.000
722911	.000	.000
720612	999.000	999.000
721312	.000	.000
722112	999.000	999.000
722912	999.000	999.000
730501	999.000	999.000
731001	999.000	999.000
731901	999.000	999.000
732401	999.000	999.000
733101	.000	.000
730802	999.000	999.000
731602	999.000	999.000
732202	.000	.000
732602	999.000	999.000
730103	999.000	999.000
730903	.000	.000
732803	999.000	999.000
733003	999.000	999.000
730604	999.000	999.000
731304	999.000	999.000
731804	999.000	999.000
732704	999.000	999.000
730405	.000	.000
731105	999.000	999.000
731805	999.000	999.000
732505	999.000	999.000
730106	.000	.000
730806	999.000	999.000
731506	999.000	999.000

WHEELER-DECATUR

DATE	CHROMIUM	COPPER
742703	999.000	999.000
740304	999.000	999.000
741004	.020	.010
741704	.000	.000
742404	.000	.000
740105	.000	.000
740805	.000	.000
741505	999.000	999.000
742205	.000	.000
742905	.020	.000
740506	.000	.000
741206	.000	.000
741906	.000	.000
742606	.000	.000
740307	999.000	999.000
741007	.000	.000
741707	.050	.001
742407	.002	.000
743107	.010	.000
740708	.000	.000
741408	.000	.004
742106	.000	.000
742808	888.000	888.000
740409	.020	.000
741109	.000	.000
741809	.000	.000
742509	.000	.000
740210	.000	.000
740910	.000	.000
741610	.000	.000
742310	.000	.000
743010	.000	.000
740611	.000	.000
741311	.000	.000
742011	.000	.000
742711	.002	.000
740612	.000	.000
741112	.000	.000
741812	.000	.000
742412	999.000	999.000
743112	.000	.000
750801	.000	.000
751501	.000	.000
752401	.000	.000
752901	.000	.000
750702	.000	.000
751202	.000	.000
751902	.000	.000
752502	.000	.000
750503	.000	.000
751203	999.000	999.000
751903	.000	.000
752603	.000	.000
750204	.000	.000
750904	000	.000
751604	.000	.000
752304	.000	.000
753004	.000	.000
750705	.000	.000
751405	.000	.000
752405	.000	.000
752805	.000	.000

BROWNS FERRY

DATE	CHROMIUM	COPPER
710606	999.000	999.000
710906	.000	.000
711606	.000	.000
712306	.000	.000
713006	.000	.000
710707	.000	.000
711407	.000	.000
712107	.000	.000
712807	.000	.000
710408	.000	.000
711108	.000	.000
711808	.000	.000
712508	.000	.000
710109	.000	.000
710809	.000	.000
711709	.000	.000
712409	.000	.000
712909	.000	.000
710610	.000	.000
711310	.000	.000
712010	.000	.000
712710	.000	.000
710311	.000	.000
711011	.000	.000
711711	.000	.000
710712	.000	.000
711012	999.000	999.000
711412	999.000	999.000
712412	.000	.000
713112	.000	.000
720401	.000	.000
721201	.000	.000
721801	.000	.000
722401	.000	.000
723101	.000	.000
720202	999.000	999.000
720902	999.000	999.000
721402	999.000	999.000
722202	999.000	999.000
722802	999.000	999.000
720603	999.000	999.000
721303	999.000	999.000
722003	.000	.000
722803	999.000	999.000
720304	999.000	999.000
721304	999.000	999.000
721704	.000	.000
722404	999.000	999.000
720205	999.000	999.000
720805	999.000	999.000
721505	999.000	999.000
722405	999.000	999.000
723105	999.000	999.000
720606	999.000	999.000
721306	.000	.000

DATE	CHROMIUM	COPPER
722006	999.000	999.000
722706	.000	.000
720607	999.000	999.000
721207	.000	.000
721807	.000	.000
722507	.000	.000
720108	.000	.000
720808	.000	.000
721508	.000	.000
722208	.000	.000
722908	.000	.000
720509	.000	.000
721309	999.000	999.000
722009	.000	.000
722709	.000	.000
720410	.000	.000
721110	.000	.000
722010	.000	.000
722510	.000	.000
720311	.030	.100
721011	.020	.000
721511	.020	.000
722211	888.000	.000
722911	.000	.000
720612	.000	.000
721312	.000	.000
722112	.000	.000
722912	.000	.010
730501	999.000	999.000
731001	.000	.000
731901	.000	.000
732401	.000	.000
733101	999.000	999.000
730802	.020	.000
731602	.000	.000
732202	999.000	999.000
732602	999.000	999.000
730103	.000	.000
730903	.000	.000
732803	999.000	999.000
733003	999.000	999.000
730604	999.000	999.000
731304	999.000	999.000
731804	999.000	999.000
732704	999.000	999.000
730405	.000	.000
731105	999.000	999.000
731805	999.000	999.000
732505	999.000	999.000
730106	.000	.000
730806	999.000	999.000
731506	999.000	999.000

BROWNS FERRY

DATE	CHROMIUM	COPPER
742703	999.000	999.000
740304	999.000	999.000
741004	.000	.000
741704	.000	.000
742404	.000	.000
740105	.000	.000
740805	.000	.000
741505	999.000	999.000
742205	.000	.000
742905	.040	.001
740506	.000	.000
741206	.000	.000
741906	.000	.000
742606	.000	.000
740307	999.000	999.000
741007	999.000	999.000
741707	.000	.002
742407	.001	.000
743107	.010	.000
740708	.010	.000
741408	.000	.001
742108	.010	.001
742808	.000	.000
740909	.030	.001
741109	.000	.000
741809	.005	.000
742509	.000	.000
740210	.000	.000
740910	.000	.000
741610	.000	.000
742310	.000	.000
743010	.000	.000
740611	.000	.000
741311	.000	.000
742011	999.000	999.000
742711	999.000	999.000
740612	.000	.000
741112	.000	.000
741812	.000	.000
742412	999.000	999.000
743112	.000	.000
750801	.000	.000
751501	.000	.000
752401	.000	.000
752901	.000	.000
750702	.000	.000
751202	.000	.000
751902	.000	.000
752502	.000	.000
750503	.000	.000
751203	999.000	999.000
751903	999.000	999.000
752603	.000	.000
750204	.000	.000
750904	.000	.000
751604	.000	.000
752304	.000	.000
753004	999.000	999.000
750705	.000	.000
751405	.000	.000
752405	.000	.000
752805	.000	.000

WHEELER-DECATUR

PHOSPHATE

DATE	TOTAL	META	ORTHO
722006	.008	.003	.005
722706	.110	.022	.088
720607	888.000	888.000	888.000
721207	.100	.100	.000
721807	.150	.100	.050
722507	.100	.100	.000
720108	.100	.100	.000
720808	2.100	2.100	.000
721508	.820	.820	.000
722208	888.000	888.000	888.000
722908	.950	.820	.130
720509	.370	.320	.050
721309	.310	.170	.140
722009	.350	.270	.050
722709	.050	.050	.000
720410	.008	.008	.000
721110	.480	.478	.002
722010	.350	.350	.000
722510	.190	.150	.040
720311	.200	.150	.050
721011	.390	.200	.190
721511	.440	.200	.240
722211	.290	.280	.010
722911	.290	.250	.040
720612	.340	.210	.130
721312	.150	.060	.090
722112	.380	.200	.180
722912	.410	.310	.100
730501	.240	.110	.130
731001	.510	.280	.130
731901	.500	.370	.130
732401	999.000	999.000	999.000
733101	.220	.080	.220
730802	.080	.080	.000
731602	.340	.170	.170
732202	.200	.130	.070
732602	999.000	999.000	999.000
730103	.295	.210	.085
730903	.290	.170	.120
732803	.130	.080	.050
733003	999.000	999.000	999.000
730604	.250	.100	.150
731304	.150	.150	.000
731804	.210	.090	.120
732704	.190	.060	.130
730405	.210	.200	.010
731105	.330	.200	.130
731805	.100	.100	.000
732505	.360	.190	.170
730106	.170	.070	.100
730806	.260	.100	.160
731506	.240	.070	.140

WHEELER-DECATUR

PHOSPHATE

DATE	TOTAL	META	ORTHO
742703	999.000	999.000	999.000
740304	999.000	999.000	999.000
741004	.190	.060	.130
741704	.130	.040	.090
742404	999.000	999.000	999.000
740105	.100	.095	.005
740805	1.400	.060	.080
741505	999.000	999.000	999.000
742205	.200	.120	.080
742905	.420	.270	.150
740506	3.900	3.650	.250
741206	3.600	3.400	.200
741906	4.200	4.050	.150
742606	3.650	3.480	.170
740307	999.000	999.000	999.000
741007	5.250	5.110	.140
741707	3.200	3.000	.200
742407	1.600	1.000	.600
743107	3.500	3.250	.250
740708	3.900	3.750	.150
741408	4.500	4.320	.180
742108	3.600	3.400	.200
742808	5.300	5.120	.170
740409	4.600	4.430	.170
741109	5.000	4.710	.290
741809	4.800	4.380	.420
742509	5.400	5.200	.200
740210	5.500	5.320	.180
740910	4.500	4.300	.200
741610	4.100	3.880	.220
742310	3.800	3.600	.200
743010	4.000	3.750	.250
740611	4.000	3.820	.180
741311	4.000	3.850	.150
742011	3.800	3.550	.250
742711	3.200	2.920	.280
740612	4.400	4.130	.270
741112	4.180	3.930	.250
741812	4.400	4.210	.190
742412	999.000	999.000	999.000
743112	2.700	2.450	.250
750801	4.000	3.780	.220
751501	3.100	2.830	.270
752401	4.100	3.750	.350
752901	3.700	3.420	.280
750702	4.200	3.990	.210
751202	3.650	3.380	.270
751902	3.900	3.710	.190
752502	4.100	3.920	.180
750503	4.600	4.220	.380
751203	999.000	999.000	999.000
751903	3.500	3.290	.210
752603	2.550	2.390	.160
750204	3.050	2.850	.200
750904	1.350	1.100	.250
751604	.700	.525	.175
752304	.600	.250	.350
753004	.960	.010	.950
750705	.450	.280	.170
751405	.250	.080	.250
752405	.310	.160	.150
752805	.380	.240	.140

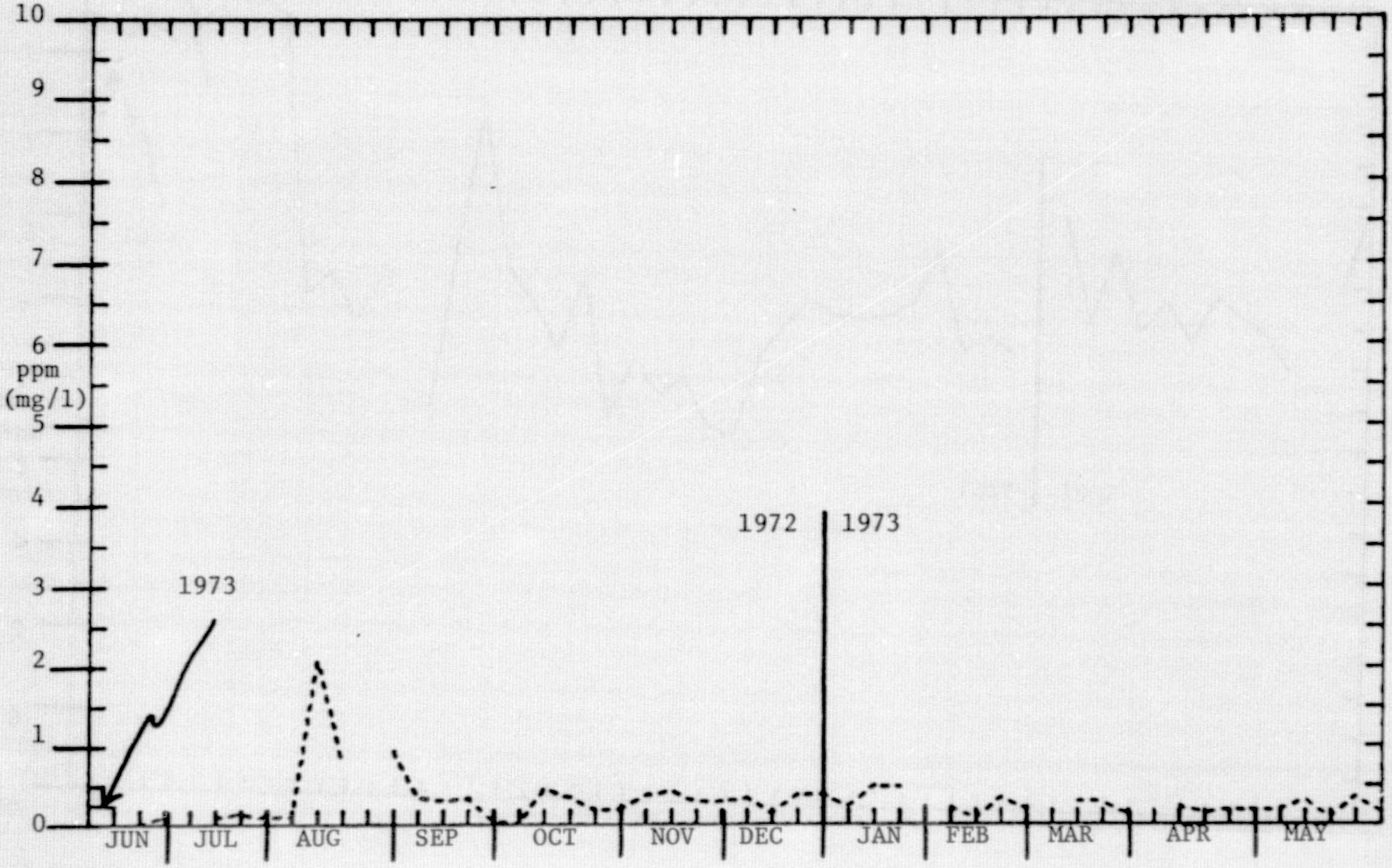

FIGURE 139. WEEKLY TOTAL PHOSPHATE OF WHEELER FROM JUNE 20, 1972 TO JUNE 15, 1973.

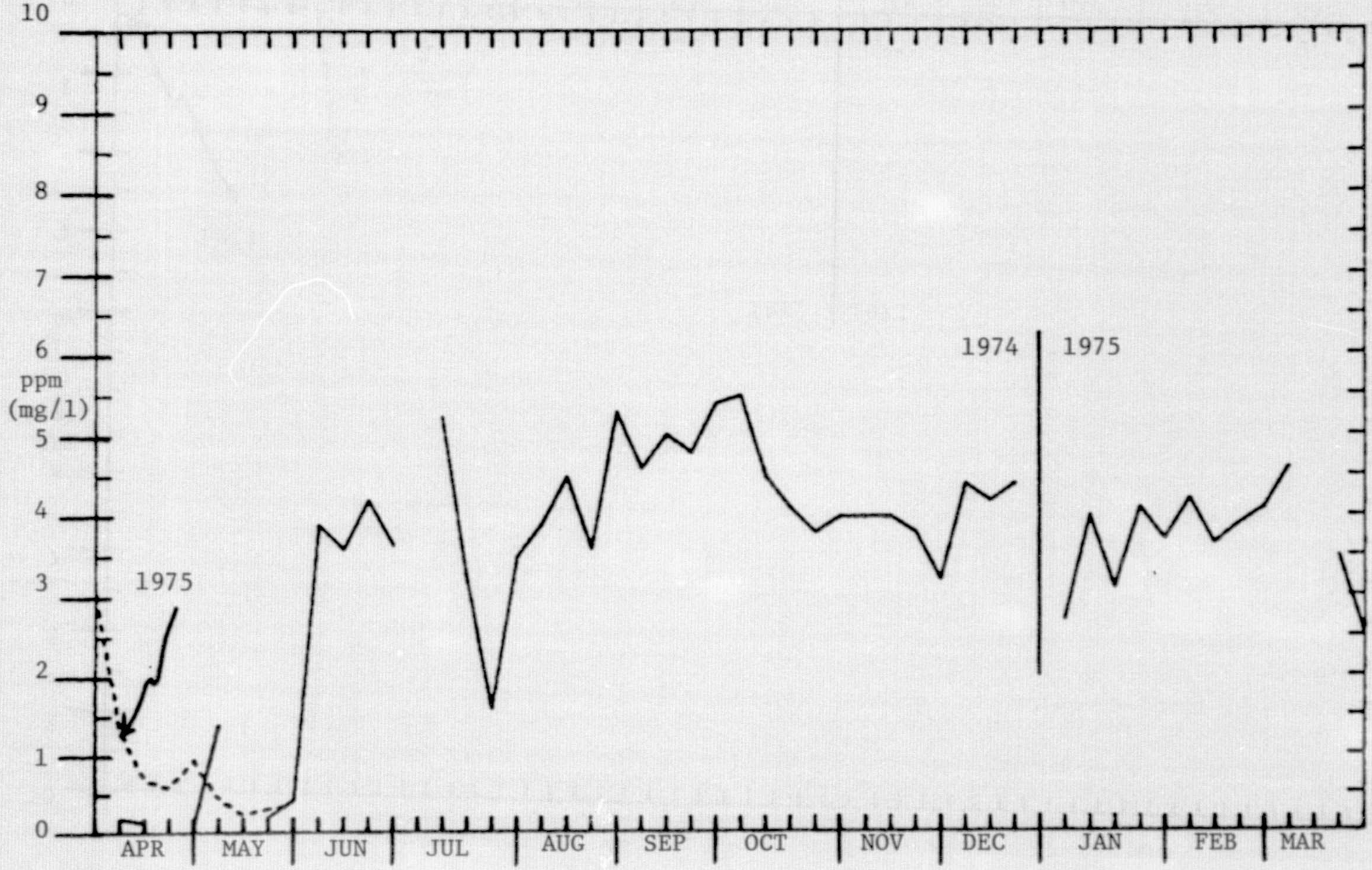

FIGURE 140. WEEKLY TOTAL PHOSPHATE OF WHEELER FROM MARCH 27, 1974 TO MAY 28, 1975.

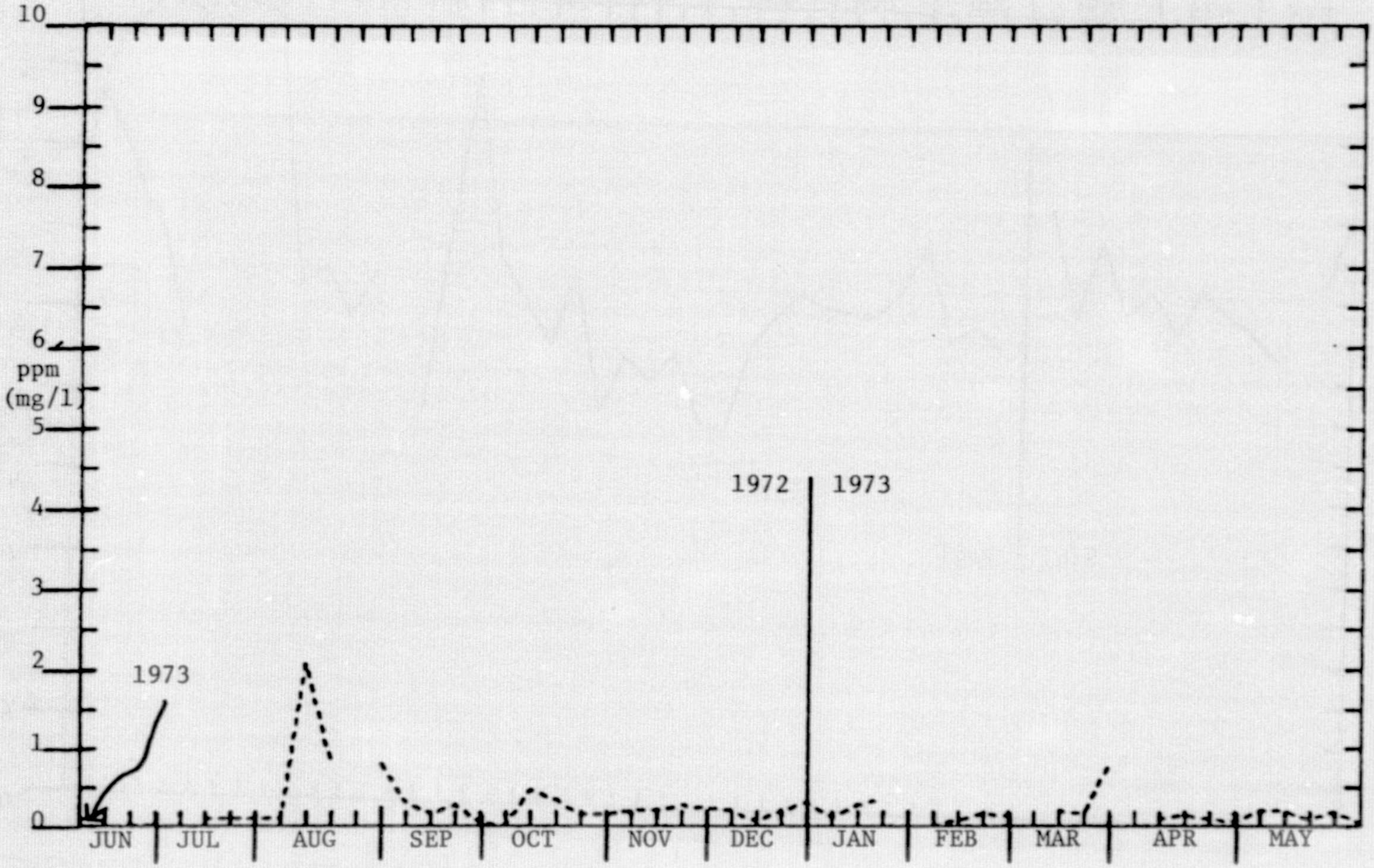

FIGURE 141. WEEKLY METAPHOSPHATE OF WHEELER FROM JUNE 20, 1972 TO JUNE 15, 1973.

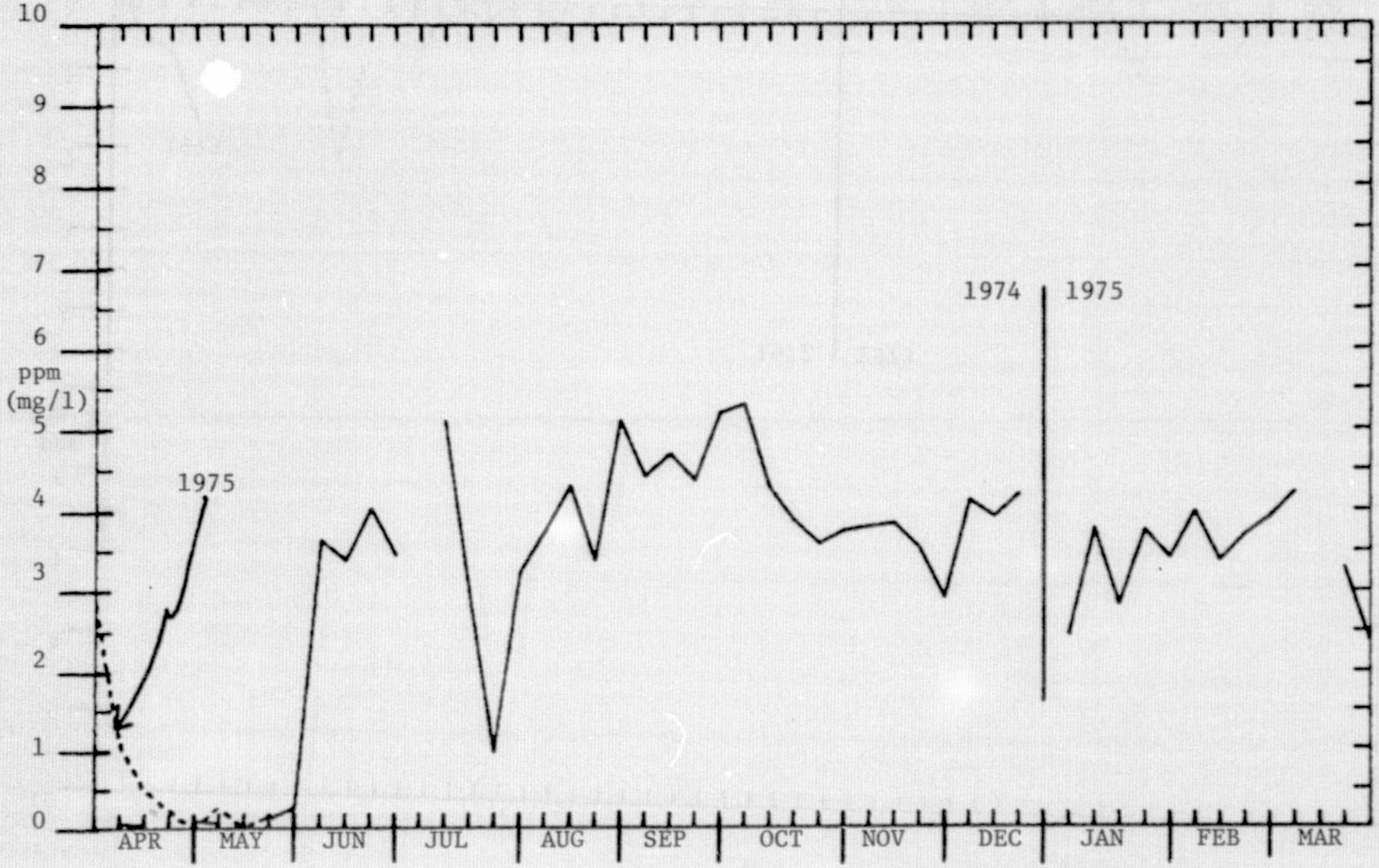

FIGURE 142. WEEKLY METAPHOSPHATE OF WHEELER FROM MARCH 27, 1974 TO MAY 28, 1975.

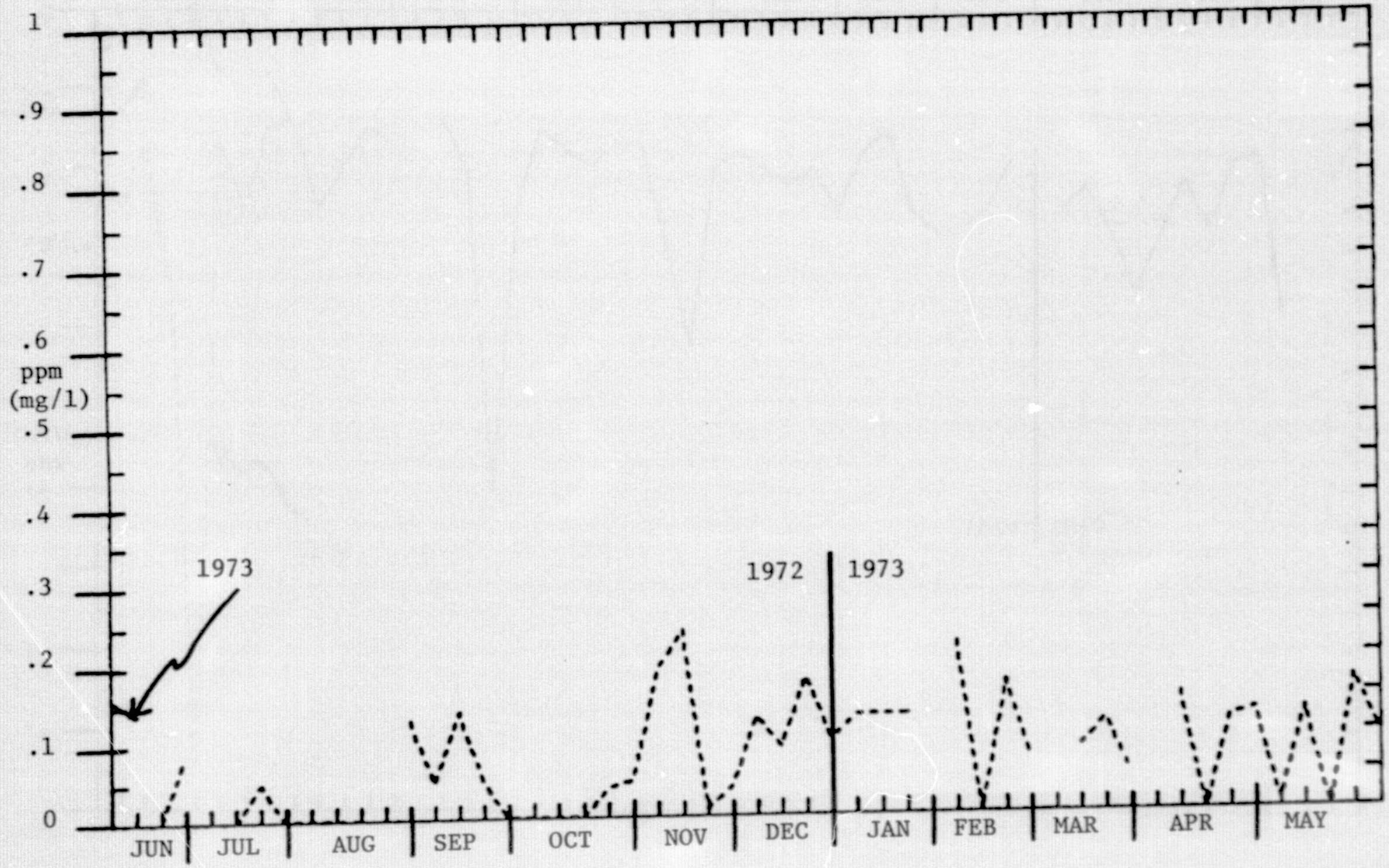

FIGURE 143. WEEKLY ORTHOPHOSPHATE OF WHEELER FROM JUNE 20, 1972 TO JUNE 15, 1973.

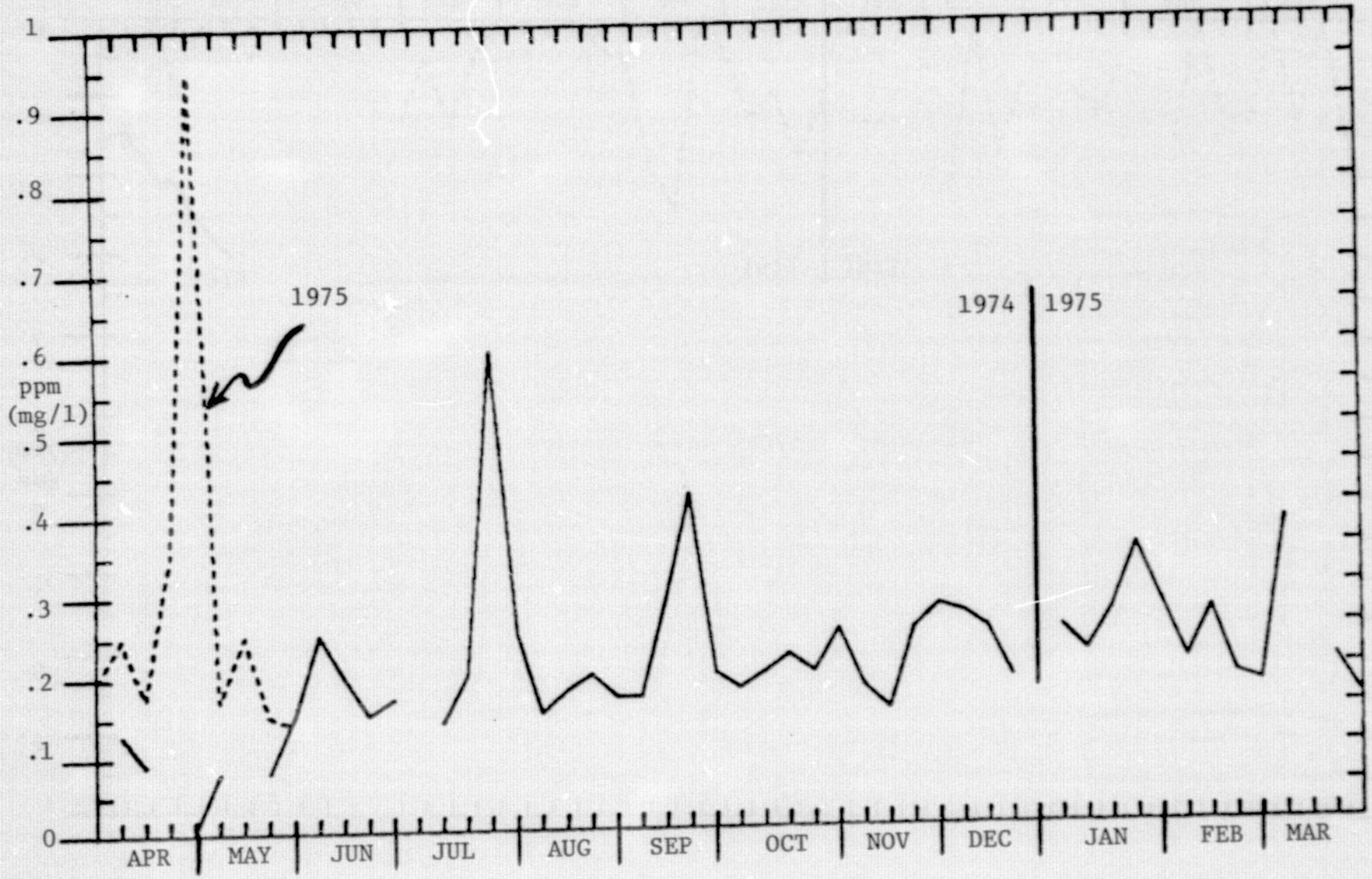

FIGURE 144. WEEKLY ORTHOPHOSPHATE OF WHEELER FROM MARCH 27, 1974 TO MAY 28, 1975.

BROWNS FERRY DATE	PHOSPHATE TOTAL	META	ORTHO
722006	.011	.008	.003
722706	.090	.088	.002
720607	888.000	888.000	888.000
721207	.050	.050	.000
721807	.150	.100	.050
722507	1.000	1.080	.000
720108	888.000	888.000	888.000
720808	.060	.060	.000
721508	.120	.120	.000
722208	888.000	888.000	888.000
722908	.350	.300	.050
720509	.480	.430	.050
721309	.280	.170	.110
722009	.250	.250	.000
722709	.050	.050	.000
720910	.200	.200	.000
721110	.400	.200	.200
722010	.900	.650	.250
722510	.250	.190	.060
720311	.270	.180	.090
721011	.240	.150	.090
721511	.260	.150	.110
722211	.360	.250	.110
722911	.290	.160	.130
720612	.340	.230	.110
721312	.080	.060	.020
722112	.260	.130	.130
722912	.420	.260	.160
730501	.300	.170	.130
731001	.190	.190	.000
731901	.470	.380	.090
732401	.110	.110	.000
733101	.130	.130	.000
730802	.090	.090	.000
731602	.310	.210	.100
732202	.150	.070	.080
732602	999.000	999.000	999.000
730103	.280	.200	.080
730903	.190	.100	.090
732803	.220	.130	.090
733003	999.000	999.000	999.000
730604	.240	.090	.150
731304	.180	.100	.080
731804	.230	.060	.170
732704	.220	.090	.130
730405	.210	.150	.050
731105	.310	.190	.120
731805	.130	.130	.000
732505	999.000	999.000	999.000
730106	.180	.090	.090
730806	.260	.090	.170
731506	.270	.060	.210

BROWNS FERRY DATE	PHOSPHATE TOTAL	META	ORTHO
742703	.180	.050	.130
740304	999.000	999.000	999.000
741004	.220	.120	.100
741704	.190	.110	.080
742404	.200	.160	.040
740105	999.000	999.000	999.000
740805	.130	.080	.050
741505	999.000	999.000	999.000
742205	.150	.142	.008
742905	.250	.030	.220
740506	2.900	2.900	.000
741206	4.500	3.800	.700
741906	4.250	4.050	.200
742606	3.810	3.610	.200
740307	999.000	999.000	999.000
741007	999.000	999.000	999.000
741707	3.400	3.100	.300
742407	1.800	1.100	.700
743107	2.900	2.720	.180
740708	5.600	5.420	.180
741408	4.100	3.800	.310
742108	4.200	4.060	.140
742808	4.000	4.820	.180
740409	5.600	5.420	.180
741109	5.500	5.210	.290
741809	5.800	5.380	.420
742509	5.100	4.880	.220
740210	5.500	5.280	.220
740910	4.800	2.580	.220
741610	4.200	4.000	.200
742310	3.930	3.710	.220
743010	4.000	3.750	.250
740611	4.700	4.480	.220
741311	3.400	3.200	.200
742011	999.000	999.000	999.000
742711	999.000	999.000	999.000
740612	4.600	4.370	.230
741112	4.500	4.270	.230
741812	4.200	4.050	.150
742412	999.000	999.000	999.000
743112	4.800	4.550	.250
750801	4.000	3.750	.250
751501	4.200	3.930	.270
752401	4.200	3.950	.250
752901	4.100	3.900	.200
750702	4.300	4.020	.280
751202	3.650	3.470	.180
751902	3.900	3.700	.200
752502	3.700	3.490	.210
750503	4.300	4.000	.300
751203	999.000	999.000	999.000
751903	999.000	999.000	999.000
752603	3.510	3.340	.170
750204	2.690	2.500	.190
750904	1.500	1.200	.300
751604	.550	.400	.150
752304	.500	.130	.370
753004	999.000	999.000	999.000
750705	.510	.400	.110
751405	.350	.200	.150
752405	.380	.210	.170
752805	.420	.300	.120

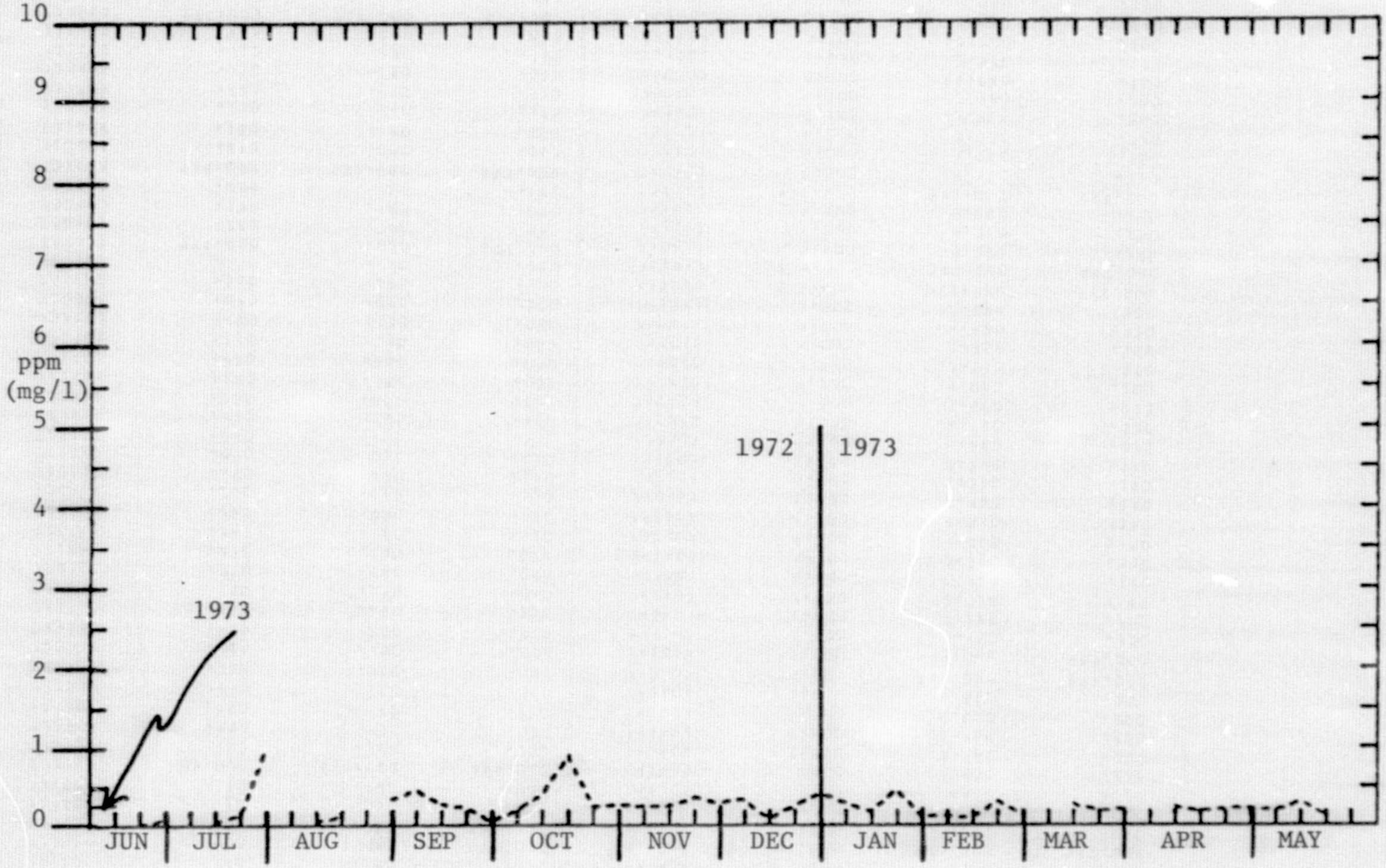

FIGURE 145. WEEKLY TOTAL PHOSPHATE OF BROWNS FERRY FROM JUNE 20, 1972 TO JUNE 15, 1973.

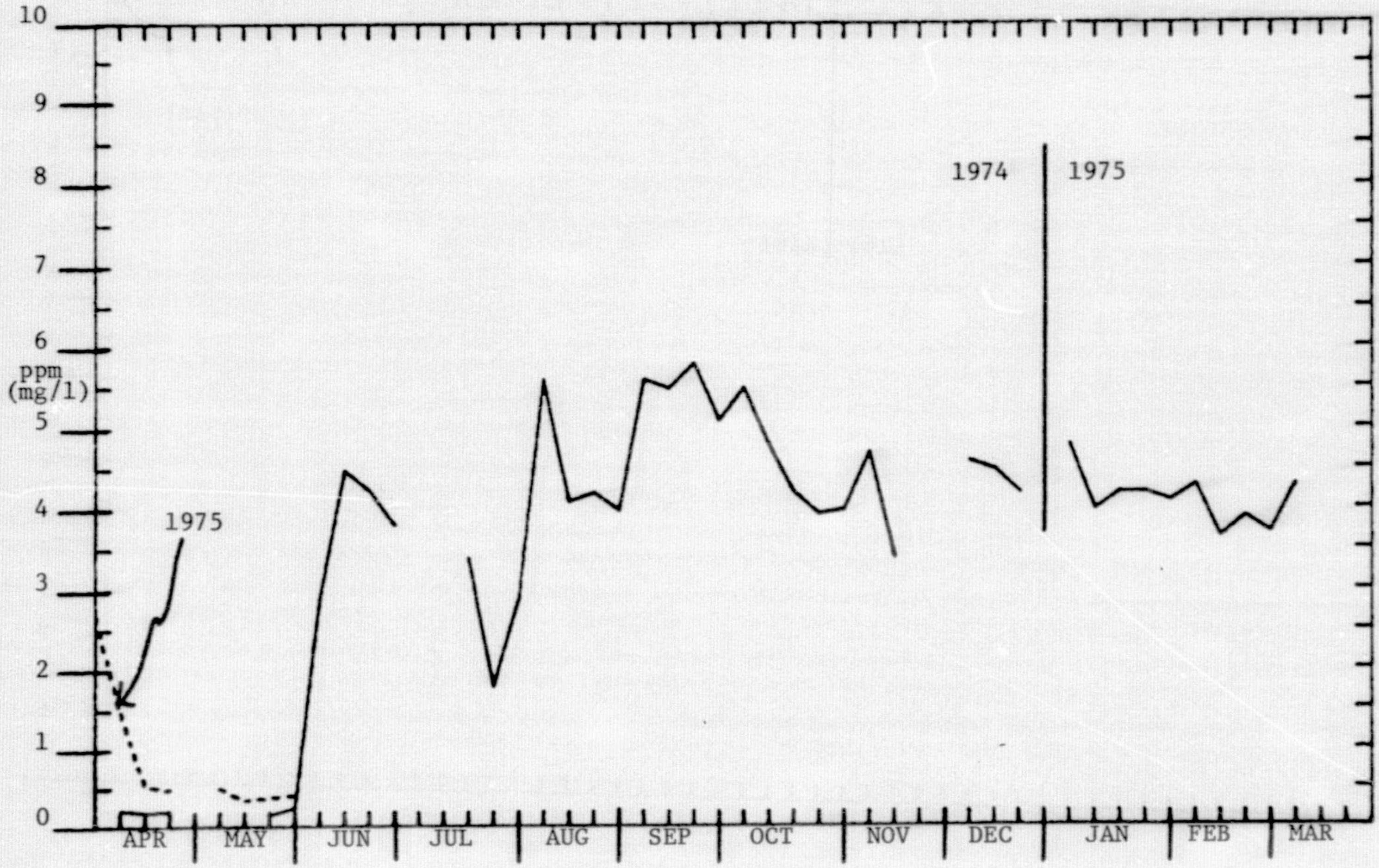

FIGURE 146. WEEKLY TOTAL PHOSPHATE OF BROWNS FERRY FROM MARCH 27, 1974 TO MAY 28, 1975.

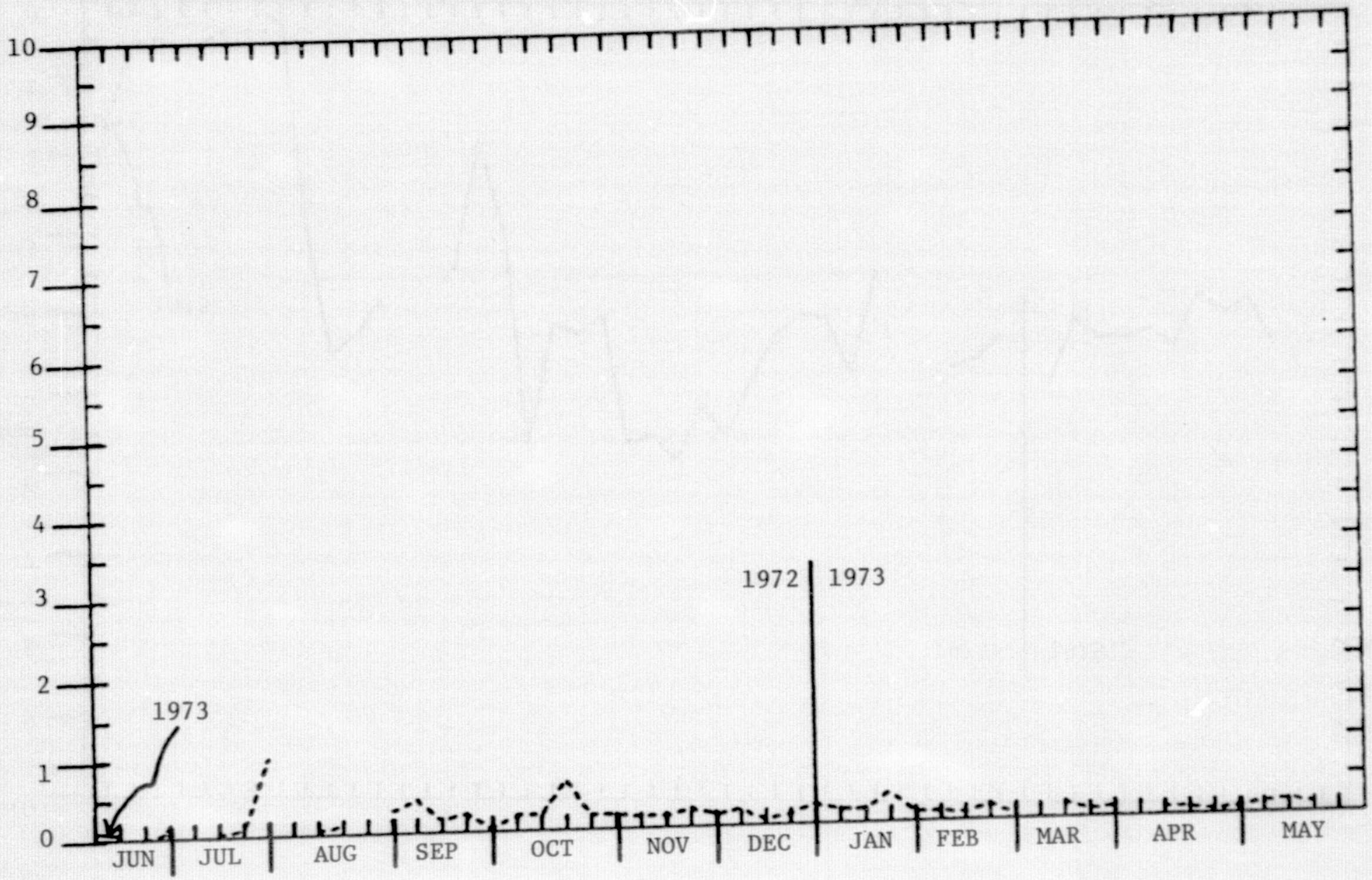

FIGURE 147. WEEKLY METAPHOSPHATE OF BROWNS FERRY FROM JUNE 20, 1972 TO JUNE 15, 1973.

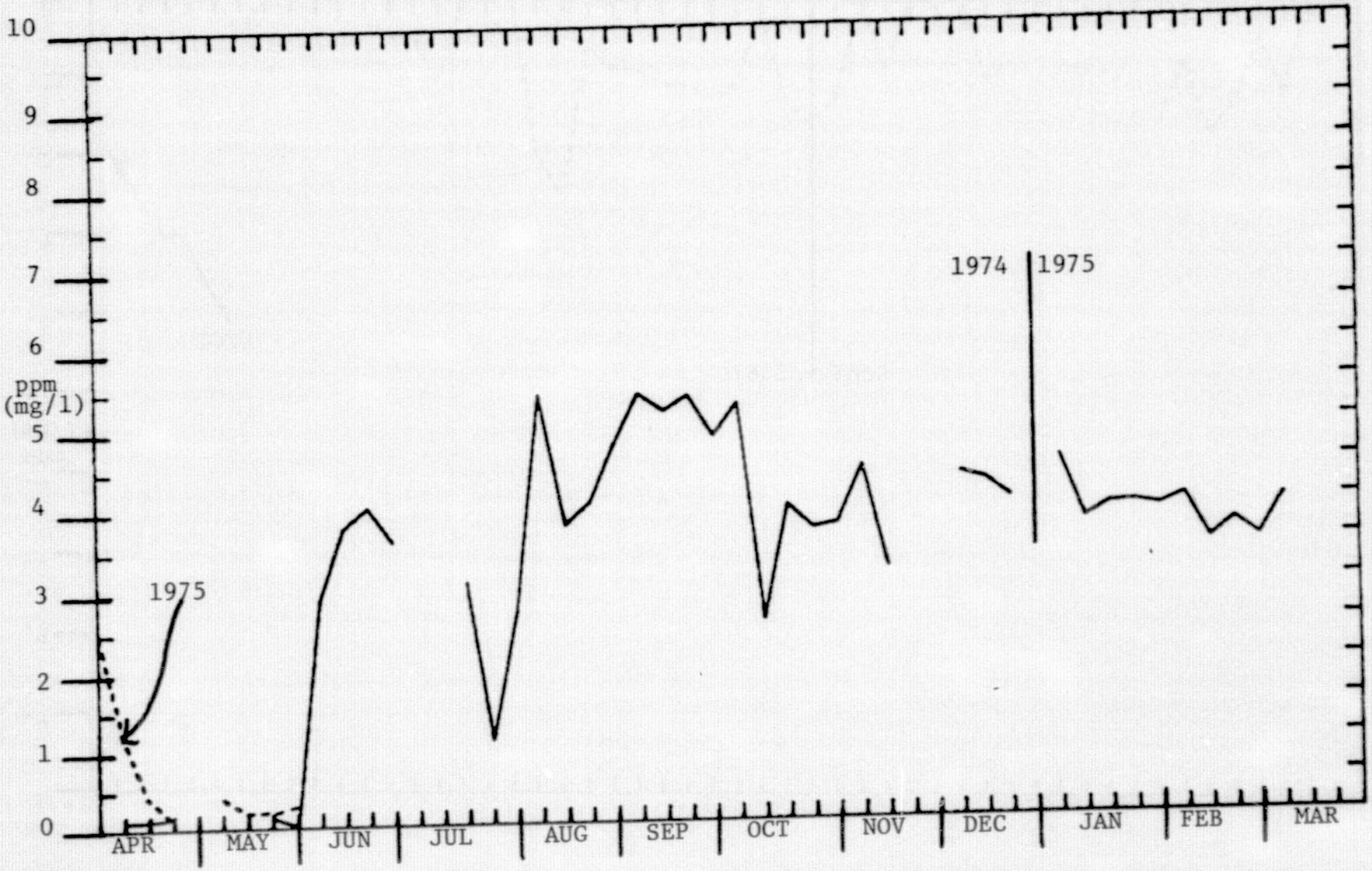

FIGURE 148. WEEKLY METAPHOSPHATE OF BROWNS FERRY FROM MARCH 27, 1974 TO MAY 28, 1975.

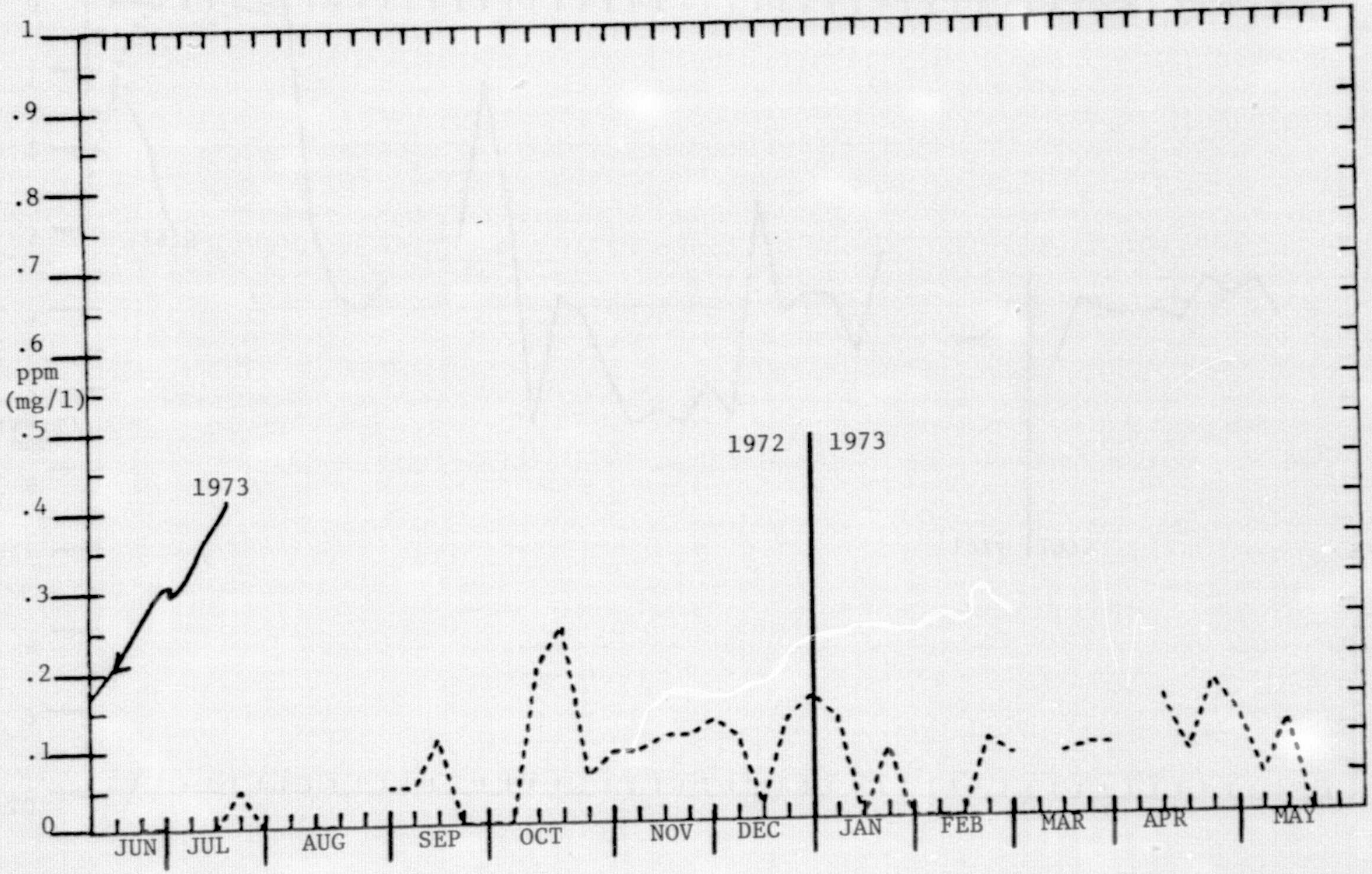

FIGURE 149. WEEKLY ORTHOPHOSPHATE OF BROWNS FERRY FROM JUNE 20, 1972 TO JUNE 15, 1973.

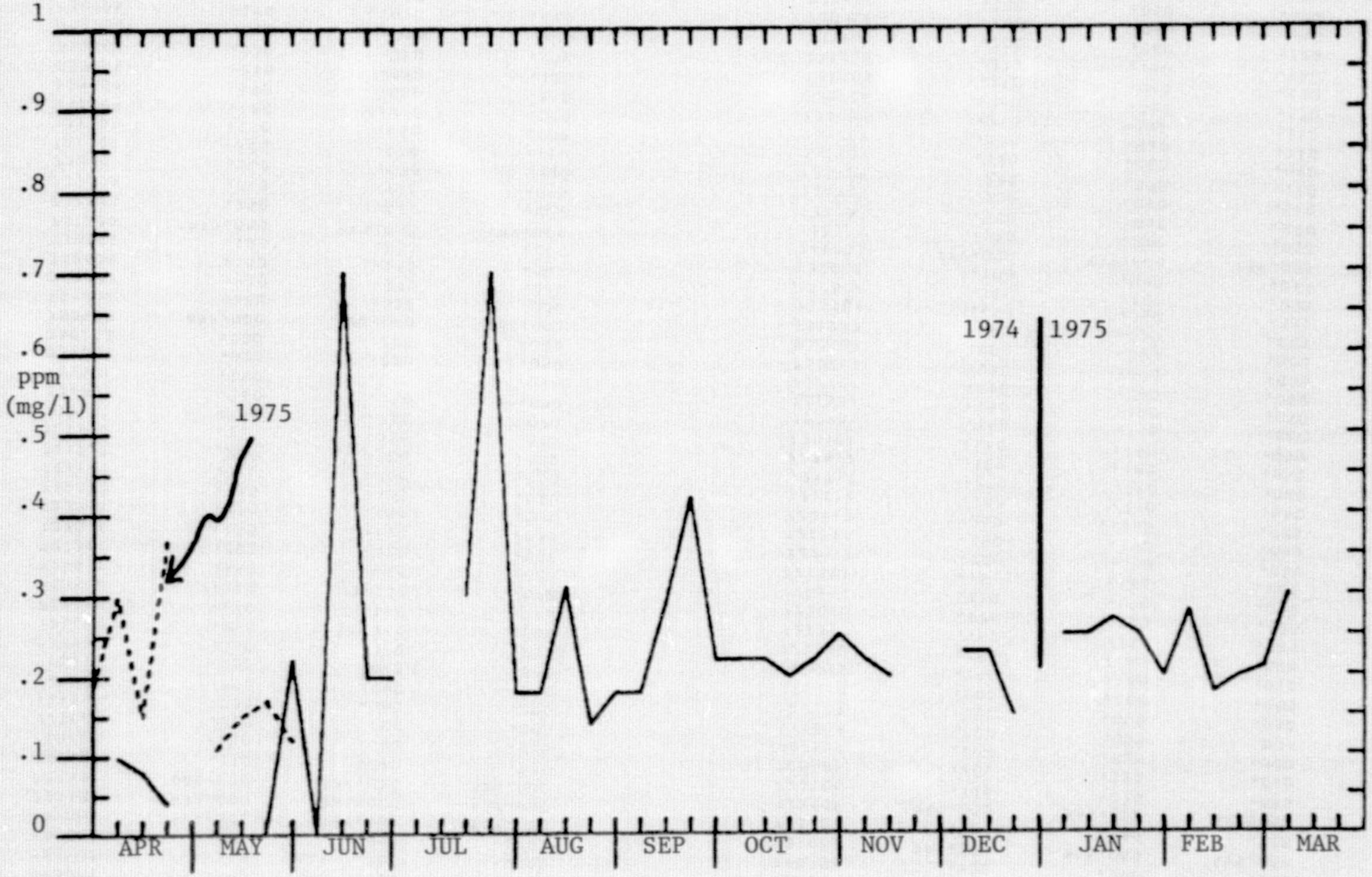

FIGURE 150. WEEKLY ORTHOPHOSPHATE OF BROWNS FERRY FROM MARCH 27, 1974 TO MAY 28, 1975.

MIRROR LAKE DATE	PHOSPHATE TOTAL	META	ORTHO
722206	.005	.005	.000
722806	.050	.050	.000
720907	999.000	999.000	999.000
721307	.150	.150	.000
722007	.400	.300	.100
722607	.350	.350	.000
720308	.000	.000	.000
721008	999.000	999.000	999.000
721708	888.000	888.000	888.000
722408	888.000	888.000	888.000
723108	.110	.070	.040
720709	.650	.600	.050
721509	.000	.000	.000
721809	.000	.000	.000
722509	.000	.000	.000
720210	.000	.000	.000
720910	.300	.300	.000
721610	.250	.250	.000
722310	.170	.160	.010
723010	3.700	3.700	.000
720611	.180	.160	.020
721311	.302	.300	.002
722011	.130	.100	.030
722711	.170	.150	.020
720412	.150	.130	.020
721112	.310	.300	.010
721712	.220	.100	.120
722612	.130	.040	.090
730101	.180	.160	.020
730901	.160	.160	.000
731501	.150	.140	.010
732201	.020	.020	.000
730202	.200	.200	.000
730502	888.000	888.000	888.000
731202	.320	.320	.000
731902	.410	.190	.220
732602	.140	.140	.000
730503	.100	.050	.050
731203	999.000	999.000	999.000
732303	.150	.080	.070
733003	.210	.170	.040
730404	.160	.040	.120
731104	.180	.070	.110
731604	.150	.050	.100
732304	.180	.090	.090
733004	.190	.080	.110
730705	.210	.090	.120
731405	.230	.090	.140
732205	.210	.080	.130
732905	.190	.070	.120
730406	.200	.060	.140
731106	.220	.090	.130

WHITAKER LAKE DATE	PHOSPHATE TOTAL	META	ORTHO
722206	.005	.005	.000
722806	.050	.049	.001
720907	999.000	999.000	999.000
721307	.009	.009	.000
722007	.700	.650	.050
722607	.200	.200	.000
720308	.200	.200	.000
721008	999.000	999.000	999.000
721708	.500	.500	.000
722408	888.000	888.000	888.000
723108	.120	.070	.050
720709	.200	.190	.010
721509	.000	.000	.000
721809	.000	.000	.000
722509	.000	.000	.000
720210	.000	.000	.000
720910	.150	.140	.010
721610	.150	.150	.000
722310	.150	.150	.000
723010	.820	.800	.020
720611	.210	.190	.020
721311	.151	.150	.001
722011	.220	.140	.080
722711	.150	.150	.000
720412	1.250	1.230	.020
721112	.280	.240	.040
721712	.270	.250	.020
722612	.150	.100	.050
730101	.160	.110	.050
730901	.140	.140	.000
731501	.150	.100	.050
732201	.060	.060	.000
730202	.030	.030	.000
730502	.000	.000	.000
731202	.050	.050	.000
731902	.690	.360	.330
732602	.160	.160	.000
730503	.100	.090	.010
731203	999.000	999.000	999.000
732303	.120	.070	.050
733003	.100	.050	.050
730404	.200	.090	.110
731104	.180	.070	.110
731604	.170	.080	.090
732304	.170	.060	.110
733004	.190	.080	.110
730705	.360	.240	.120
731405	.170	.040	.130
732205	.270	.150	.120
732905	.200	.080	.120
730406	.200	.060	.140
731106	.200	.060	.140

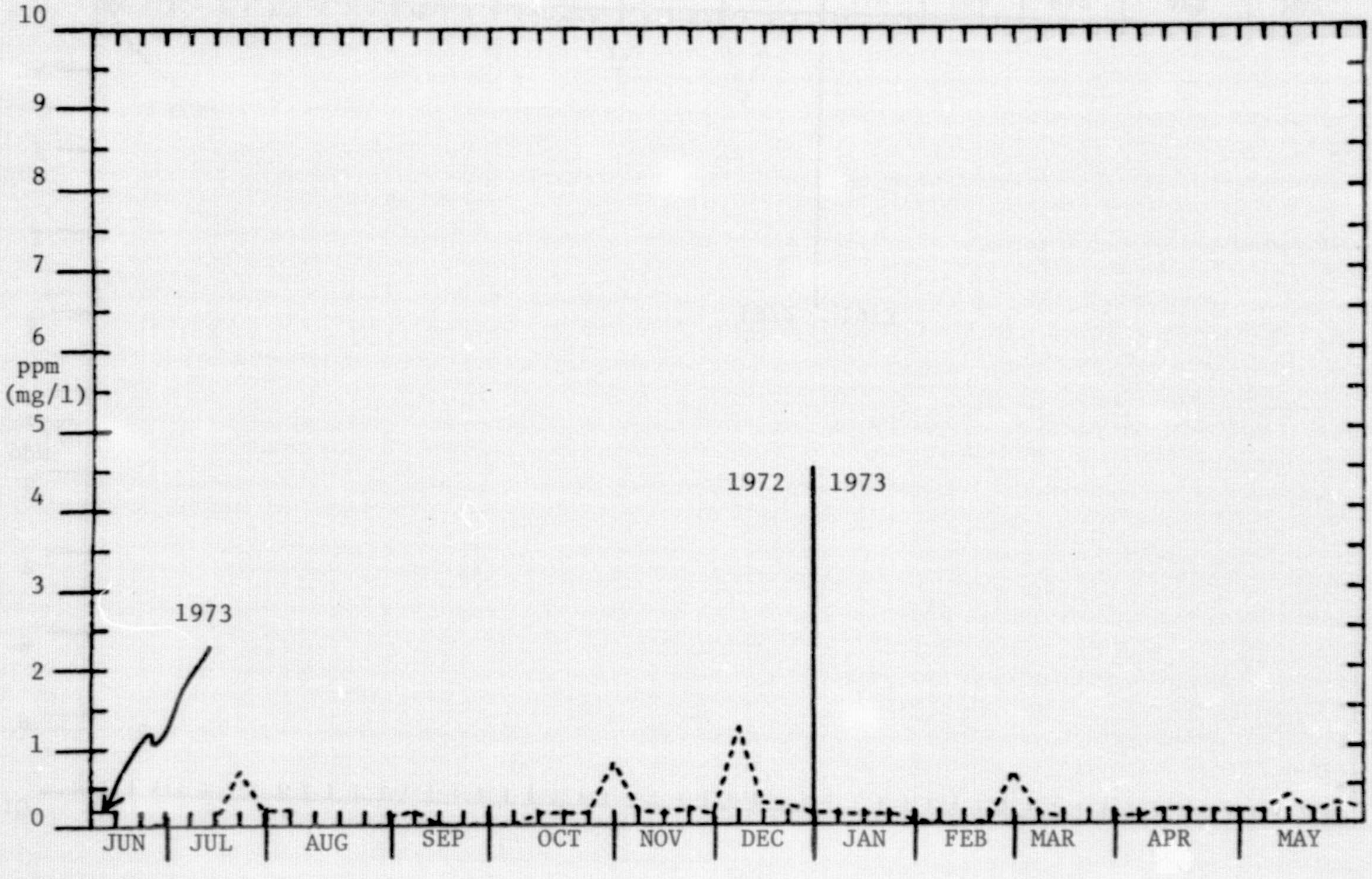

FIGURE 127. WEEKLY TOTAL PHOSPHATE OF WHITACKER FROM JUNE 20, 1972 TO JUNE 11, 1973.

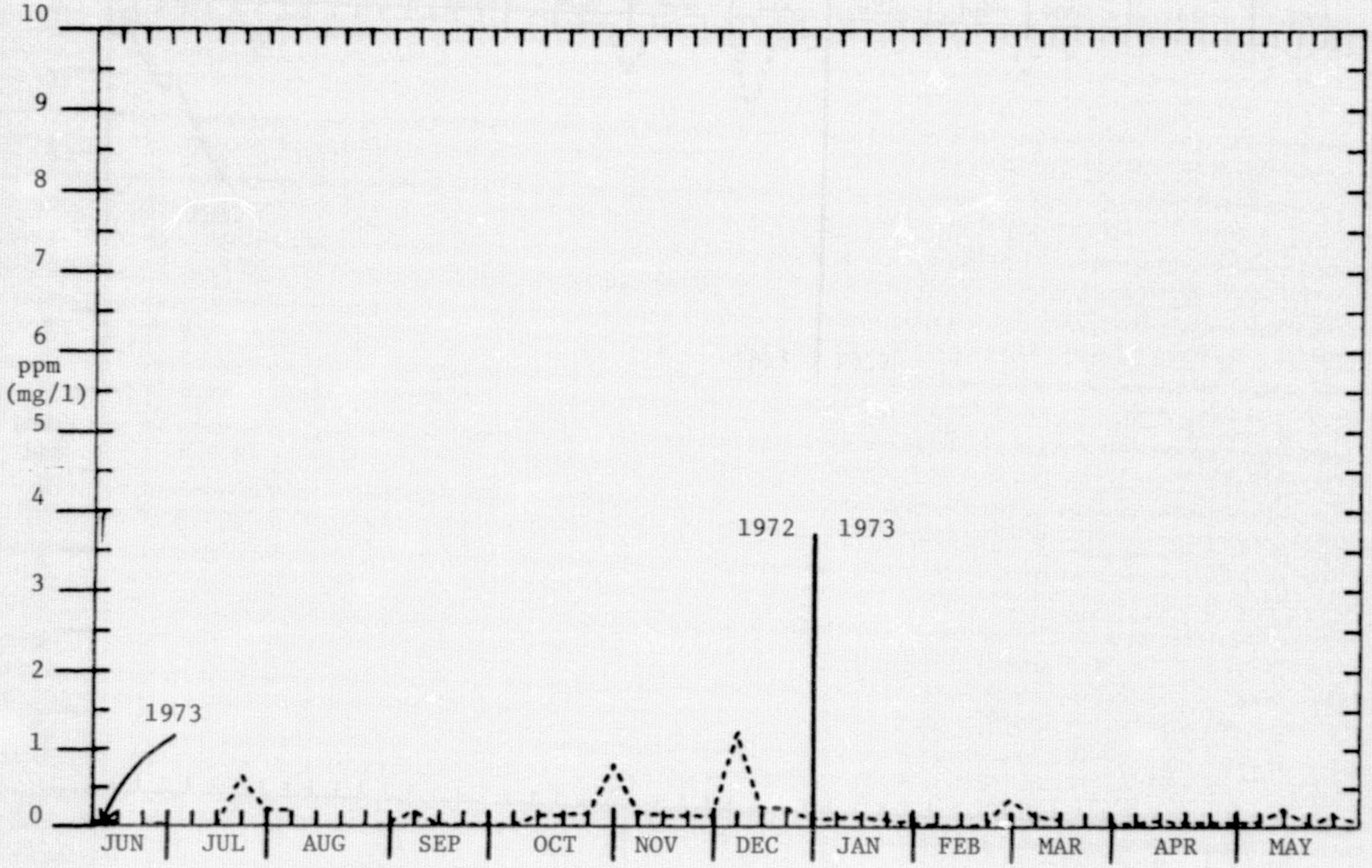

FIGURE 128. WEEKLY METAPHOSPHATE OF WHITACKER FROM JUNE 20, 1972 TO JUNE 11, 1973.

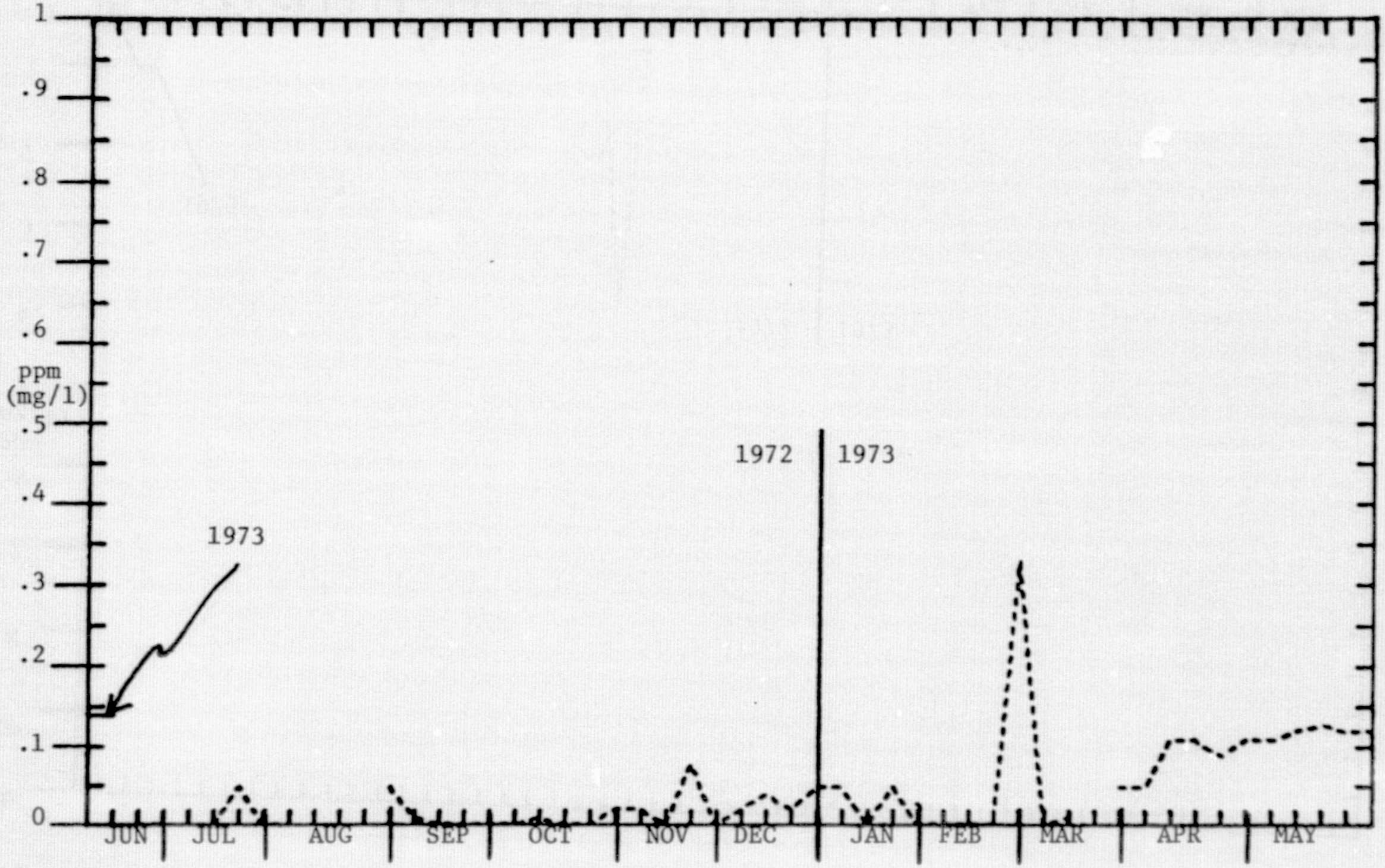

FIGURE 129. WEEKLY ORTHOPHOSPHATE OF WHITACKER FROM JUNE 20, 1972 TO JUNE 11, 1973.

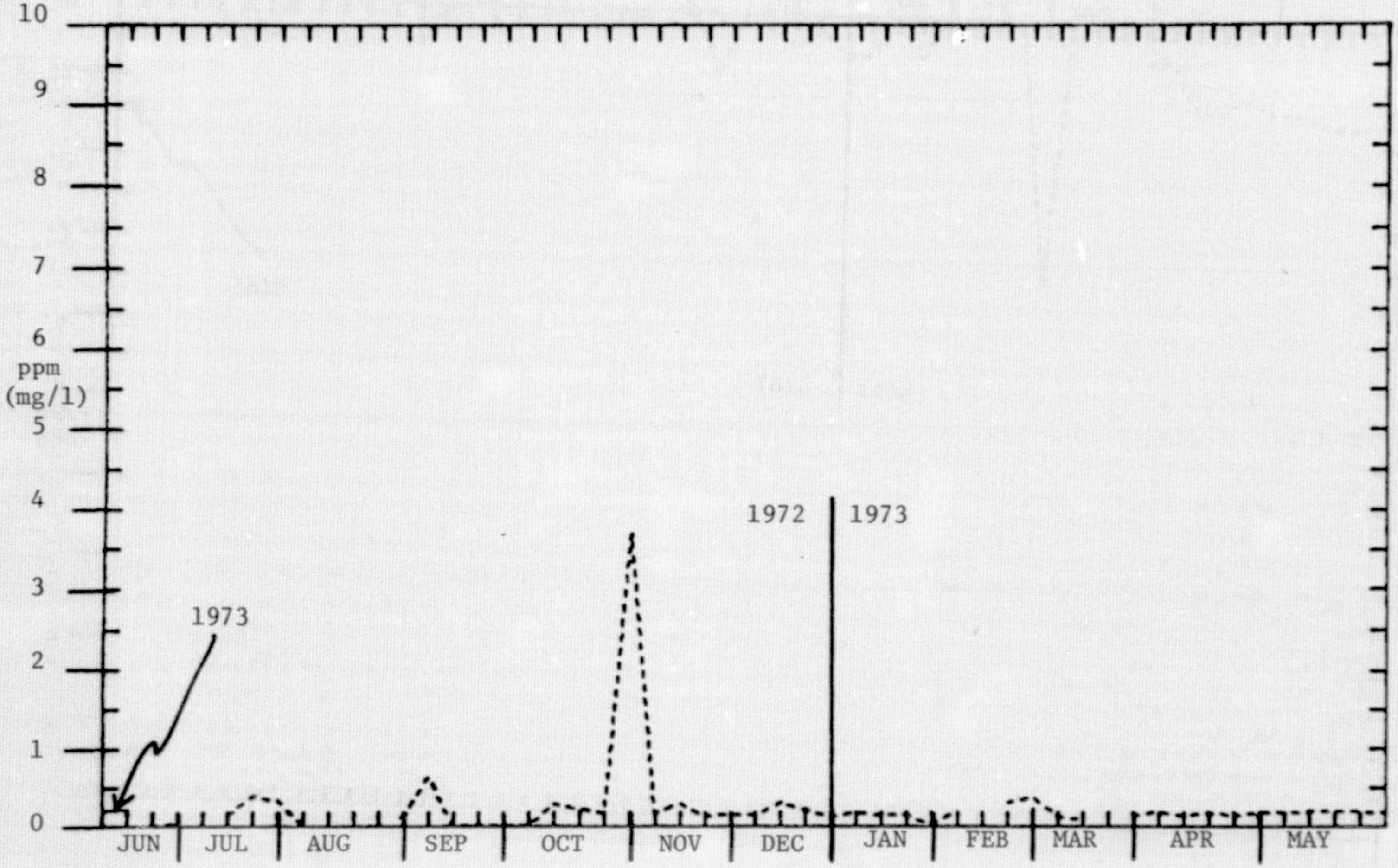

FIGURE 130. WEEKLY TOTAL PHOSPHATE OF MIRROR LAKE FROM JUNE 20, 1972 TO JUNE 11, 1973.

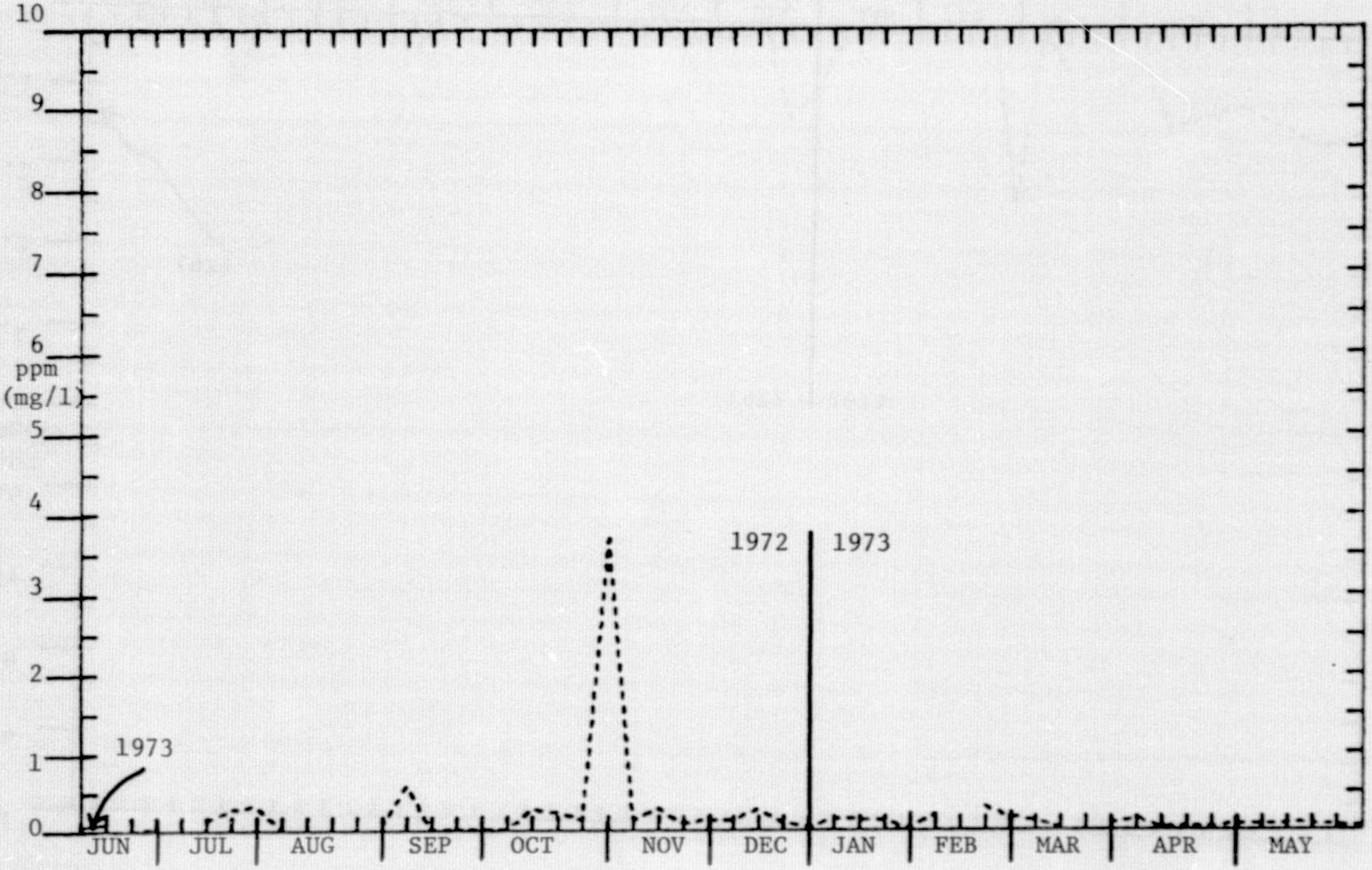

FIGURE 131. WEEKLY METAPHOSPHATE OF MIRROR FROM JUNE 20, 1972 TO JUNE 11, 1973.

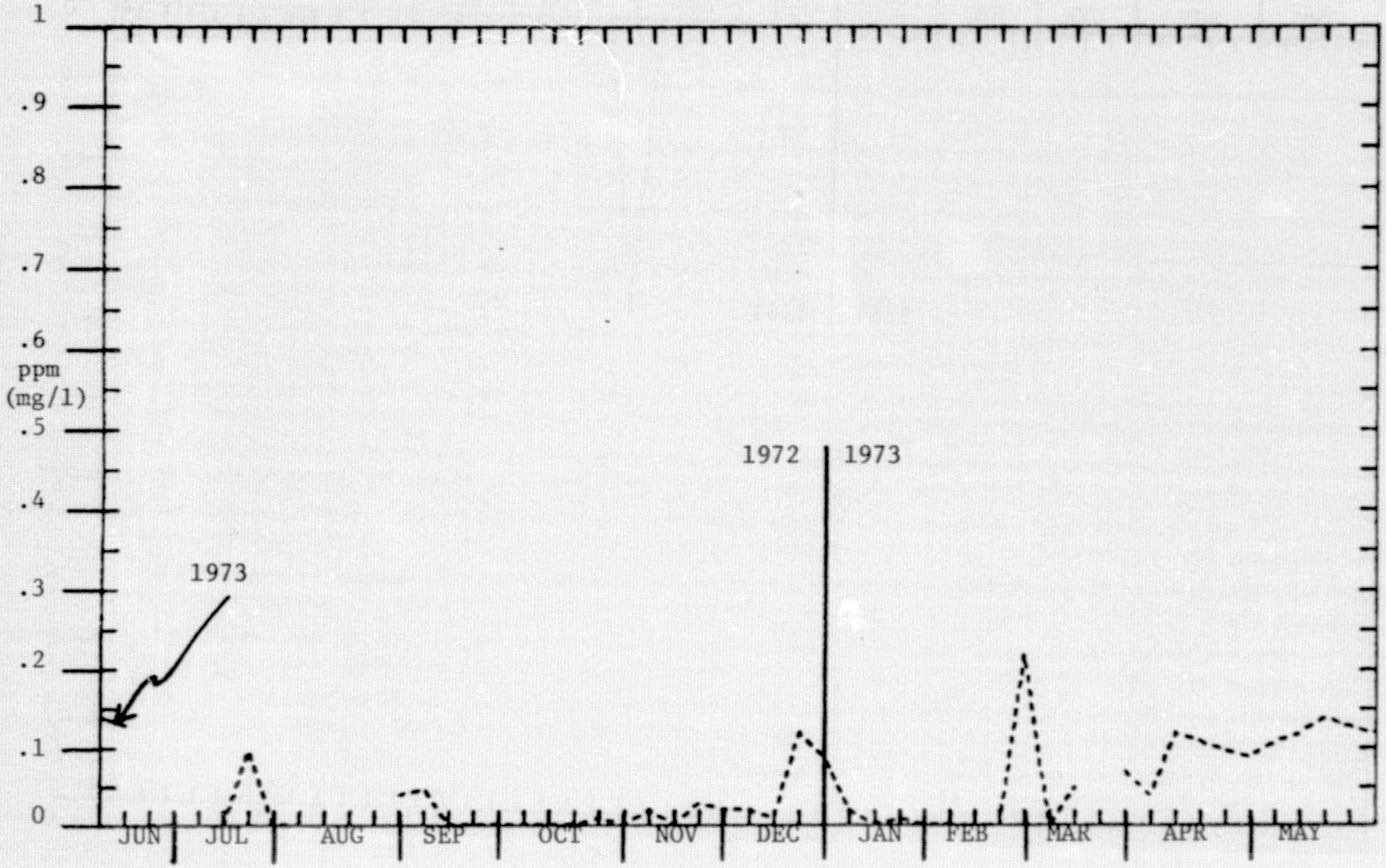

FIGURE 132. WEEKLY ORTHOPHOSPHATE OF MIRROR LAKE FROM JUNE 20, 1972 TO JUNE 11, 1973.

WHITESBURG BOAT DOCK

DATE	TOTAL	PHOSPHATE MEJA	ORTHO
722206	.005	.002	.003
722806	.080	.001	.079
720407	999.000	999.000	999.000
721307	2.000	1.992	.008
722007	.230	.160	.070
722607	.100	.100	.000
720308	.000	.080	.000
721008	999.000	999.000	999.000
721708	888.000	888.000	888.000
722408	888.000	888.000	888.000
723108	.140	.100	.040
720709	.900	.880	.020
721509	.000	.080	.000
721809	.000	.000	.000
722509	.000	.000	.000
720210	.005	.085	.000
720910	.160	.160	.000
721610	.160	.050	.100
722310	.220	.210	.010
723010	.570	.350	.220
720611	.320	.270	.050
721311	.790	.310	.480
722011	.270	.220	.050
722711	.330	.180	.150
720412	.180	.110	.070
721112	.330	.250	.080
721712	.290	.190	.100
722612	.200	.080	.120
730101	.240	.140	.100
730901	.200	.200	.000
731501	.220	.220	.000
732201	.380	.380	.000
730202	.090	.090	.000
730502	.050	.050	.050
731202	.080	.080	.000
731902	.170	.150	.020
732602	.150	.100	.050
730503	.170	.160	.010
731203	999.000	999.000	999.000
732303	.250	.070	.180
733003	.190	.130	.060
730404	.150	.060	.090
731104	.210	.070	.140
731404	.190	.080	.110
732304	.190	.070	.120
733004	.190	.060	.130
730705	.310	.180	.130
731405	.270	.120	.150
732205	.250	.090	.160
732905	.230	.050	.180
730406	.220	.070	.150
731106	.230	.070	.160

WHITESBURG BOAT DOCK

DATE	TOTAL	PHOSPHATE MEJA	ORTHO
742603	999.000	999.000	999.000
740204	.140	.040	.100
740904	999.000	999.000	999.000
741604	999.000	999.000	999.000
742304	.160	.060	.100
743004	999.000	999.000	999.000
740605	.170	.060	.110
741305	.130	.010	.120
742005	.200	.020	.180
742705	3.000	2.840	.160
740406	3.300	3.120	.180
741106	3.200	3.010	.190
741806	4.200	4.040	.160
742506	3.600	3.200	.400
740207	4.300	4.120	.180
740907	4.700	4.550	.150
741607	3.800	3.650	.150
742307	3.600	3.400	.200
743007	5.000	4.800	.200
740608	5.200	4.600	.600
741308	3.600	3.460	.140
742208	3.400	3.220	.180
742708	3.800	3.620	.180
740409	5.400	5.210	.190
741009	5.600	5.380	.220
741709	4.900	4.700	.200
742409	5.300	5.100	.200
740110	5.000	4.800	.200
740810	4.300	5.080	.220
741510	4.000	3.800	.200
742410	4.100	3.900	.200
743010	999.000	999.000	999.000
740511	4.500	4.330	.170
741211	999.000	999.000	999.000
742011	4.200	3.950	.250
742611	3.600	3.390	.210
740712	4.800	4.590	.210
741112	4.600	4.350	.250
741712	3.800	3.650	.150
742312	4.300	4.150	.150
750201	4.390	4.190	.200
750801	4.400	4.200	.200
751401	4.300	4.100	.200
752101	5.000	4.730	.270
752801	5.600	5.220	.380
750402	999.000	999.000	999.000
751402	3.950	3.750	.200
752002	4.000	3.790	.210
752502	4.500	3.790	.380
750403	5.500	5.220	.280
751103	999.000	999.000	999.000
751803	3.200	2.080	.120
752503	3.100	2.980	.120
750104	2.800	2.590	.210
750704	2.730	2.550	.180
751504	.700	.500	.200
752204	.520	.370	.150
750105	1.050	.250	.800
750805	.350	.250	.120
751605	.300	.290	.010
752405	.31C	.200	.110
752805	.410	.210	.140

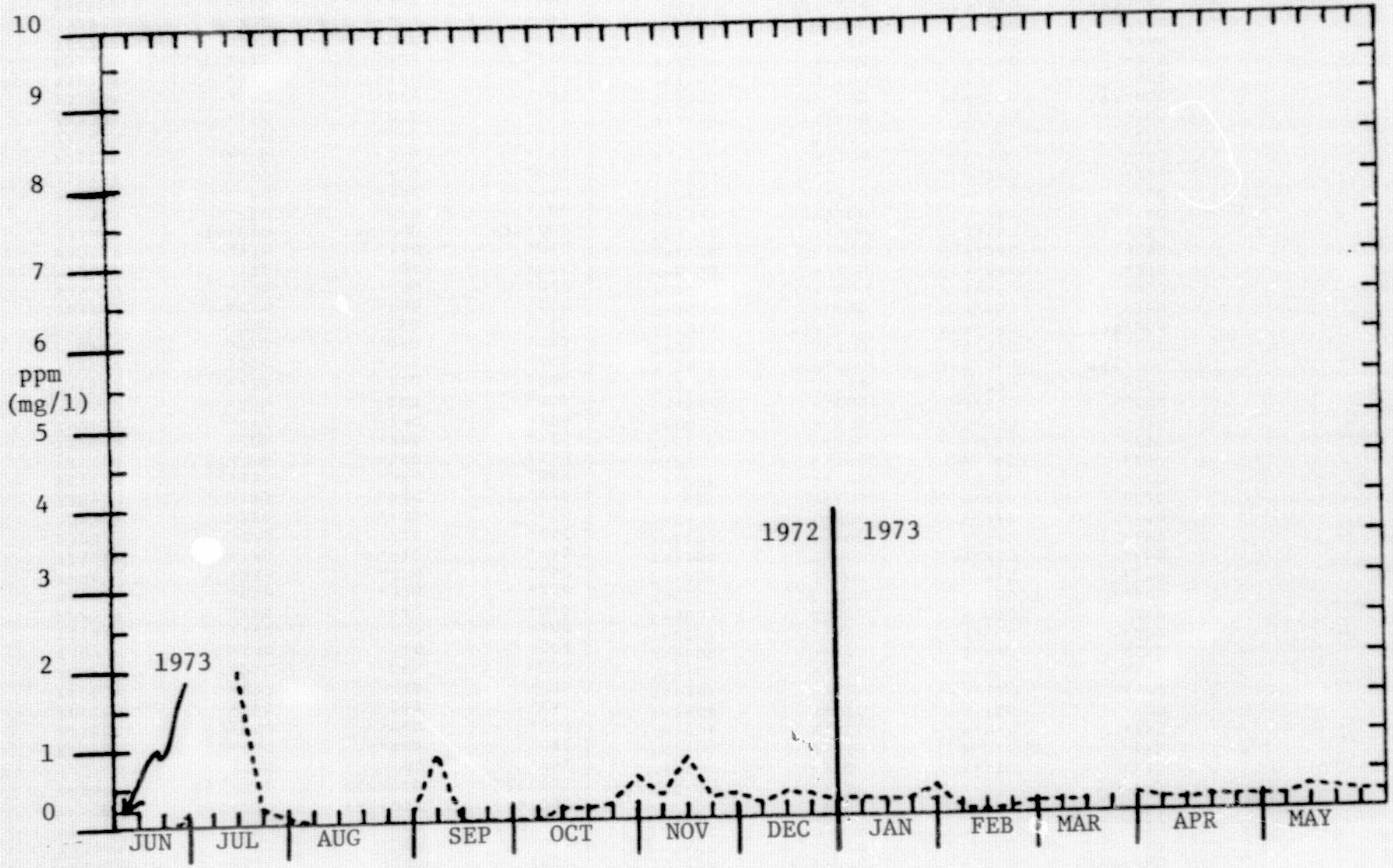

FIGURE 133. WEEKLY TOTAL PHOSPHATE OF WHITESBURG FROM JUNE 20, 1972 TO JUNE 11, 1973.

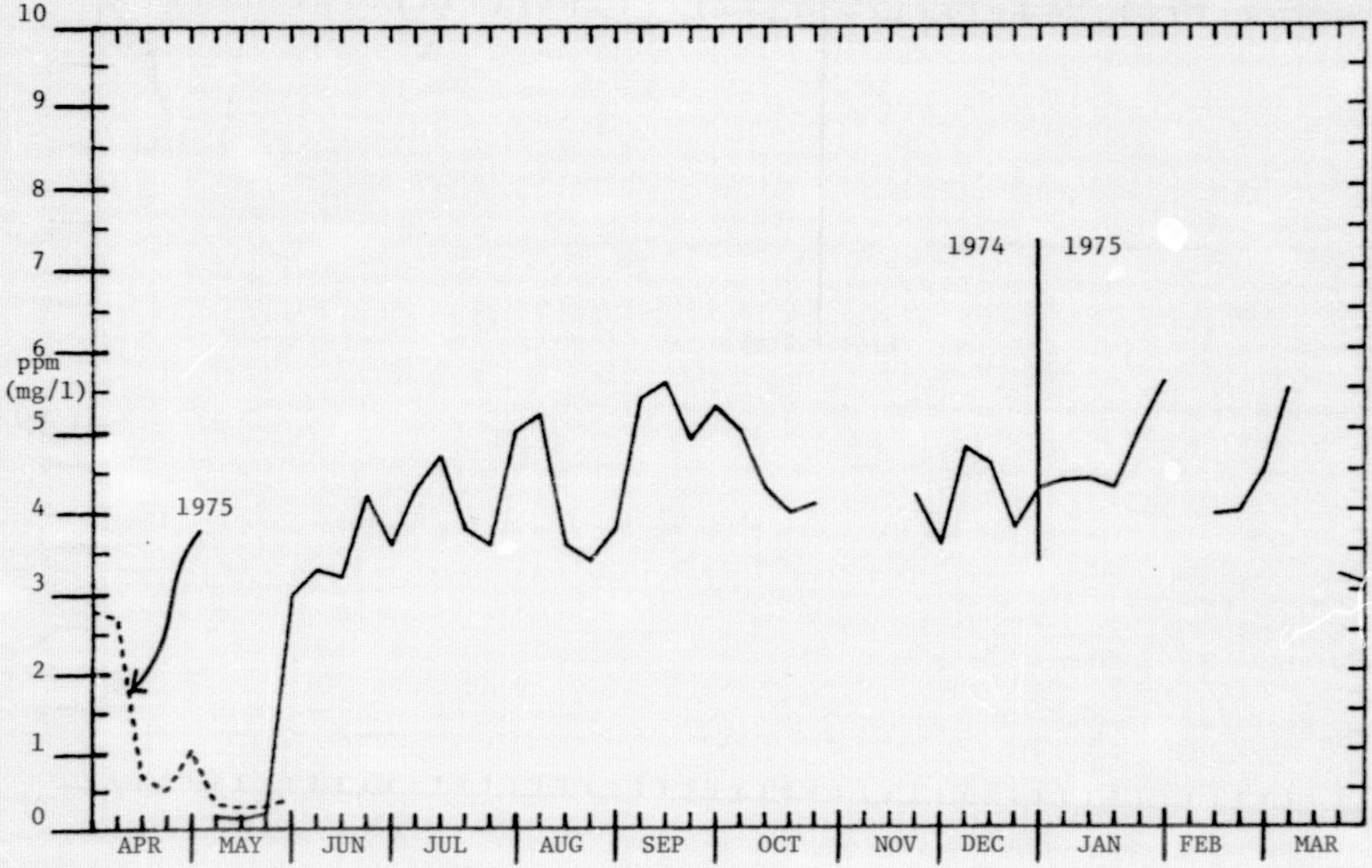

FIGURE 134. WEEKLY TOTAL PHOSPHATE OF WHITESBURG FROM MARCH 27, 1974 TO MAY 28, 1975.

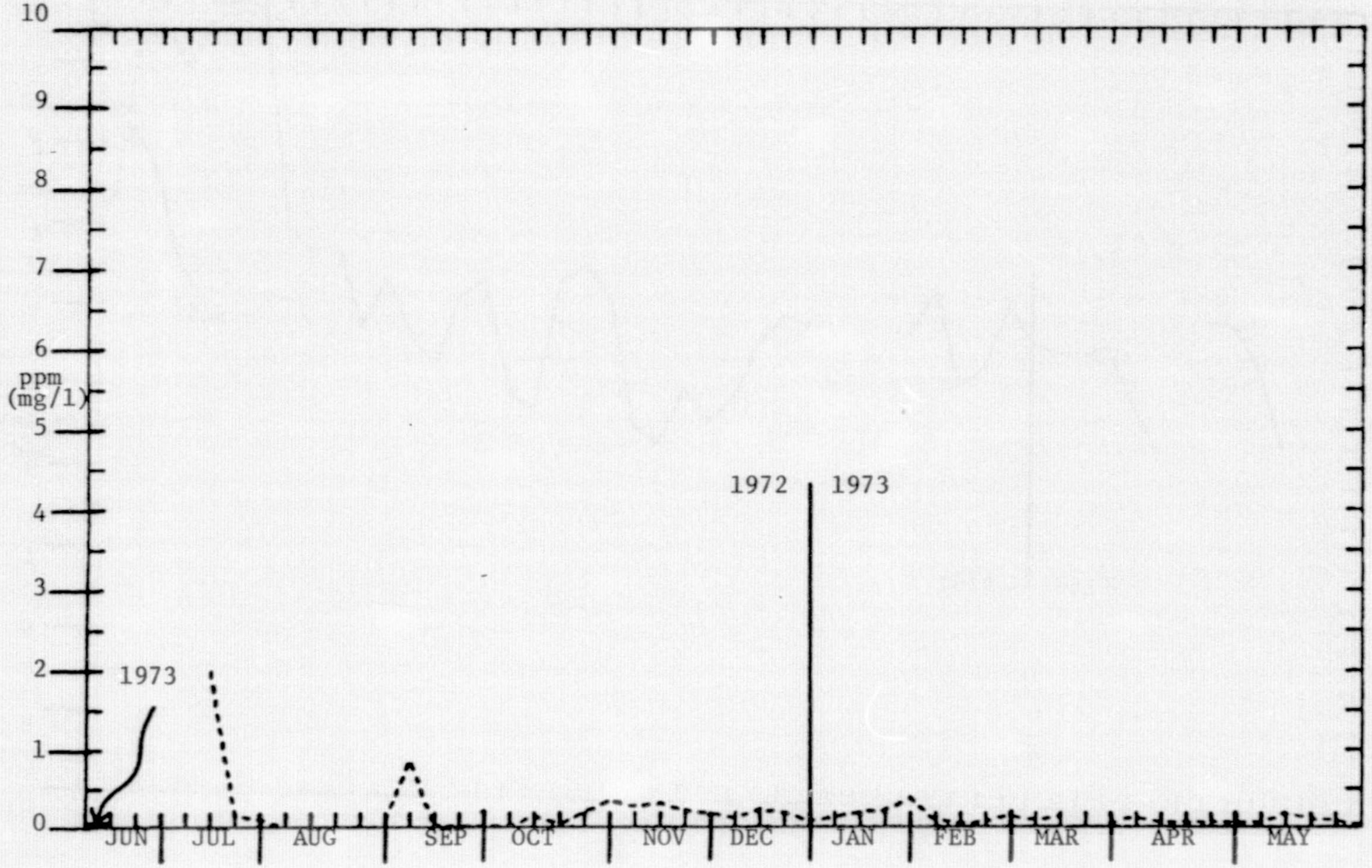

FIGURE 135. WEEKLY METAPHOSPHATE OF WHITESBURG FROM JUNE 20, 1972 TO JUNE 11, 1973.

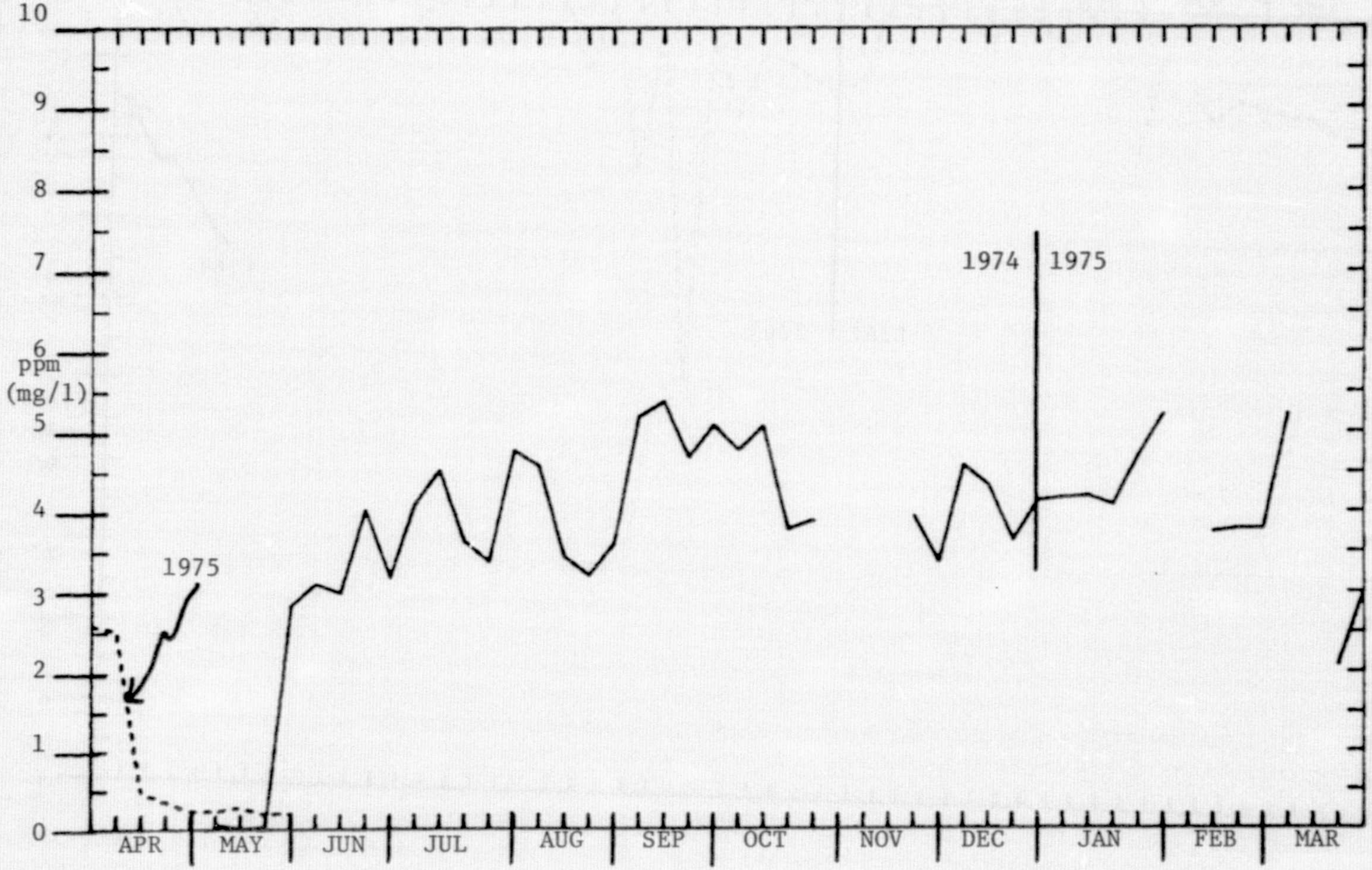

FIGURE 136. WEEKLY METAPHOSPHATE OF WHITESBURG FROM MARCH 27, 1974 TO MAY 28, 1975.

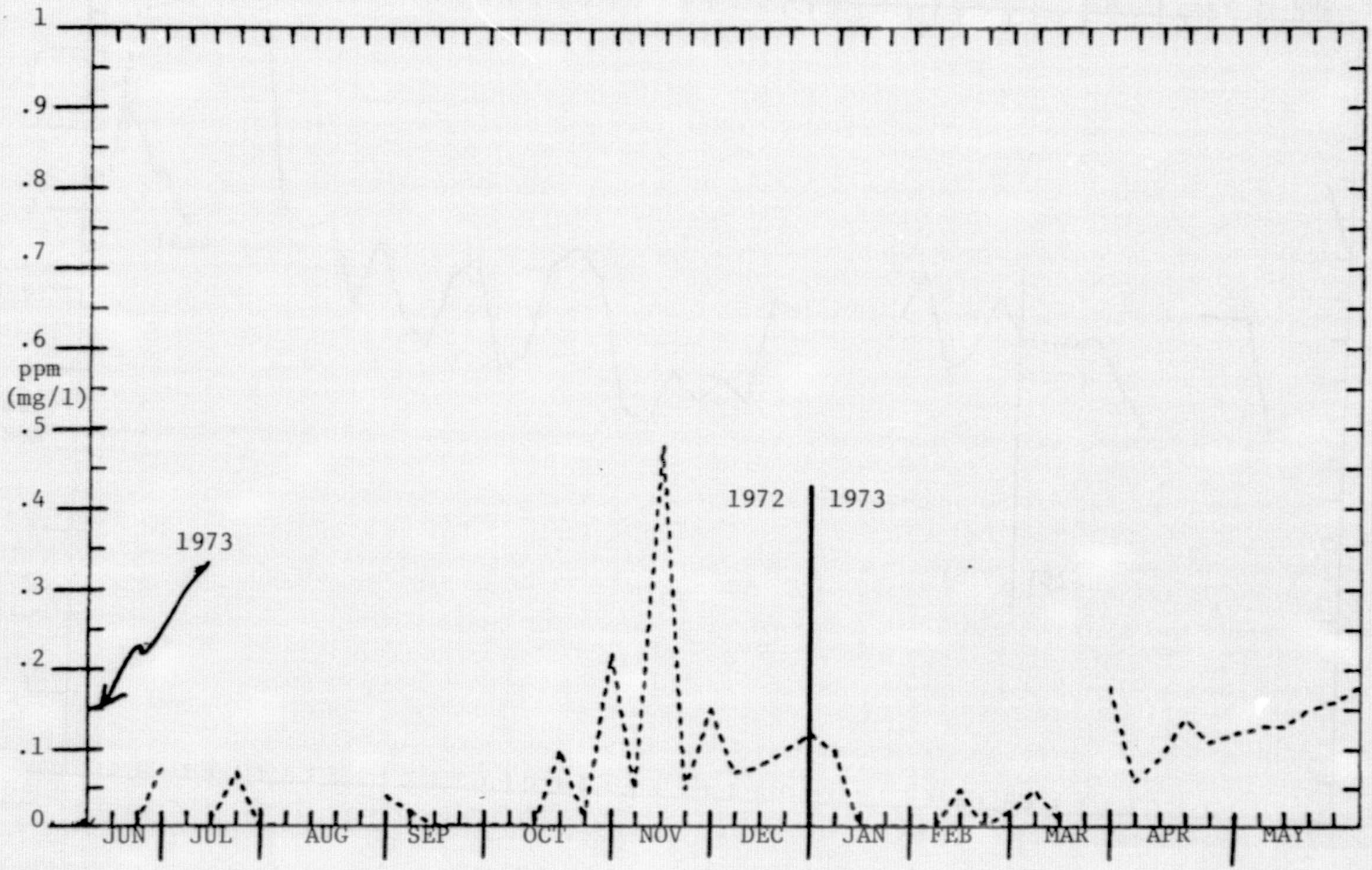

FIGURE 137. WEEKLY ORTHOPHOSPHATE OF WHITACKER FROM JUNE 20, 1972 TO JUNE 11, 1973.

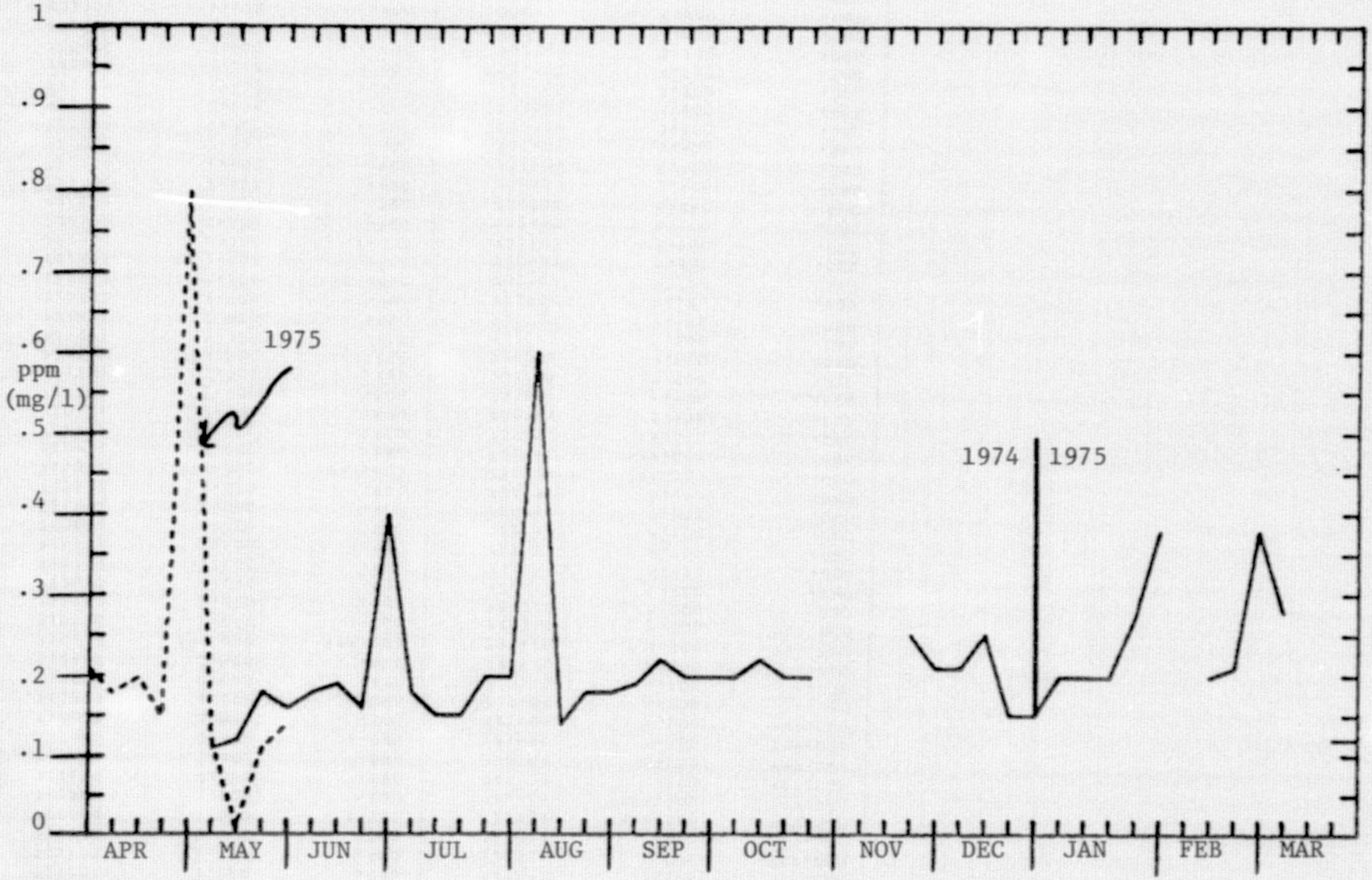

FIGURE 138. WEEKLY ORTHOPHOSPHATE OF WHITESBURG FROM MARCH 27, 1974 TO MAY 28, 1975.

WHITAKER LAKE

DATE	SILICA	SALINITY
710706	1.500	2.000
711406	1.500	1.200
712106	1.500	.600
712806	1.800	1.000
710407	2.000	.800
711207	1.000	.800
711907	1.200	.600
712607	3.500	.800
710208	1.000	1.000
710908	1.000	.800
711608	2.000	.800
712308	1.500	.800
713008	1.500	1.000
710609	2.000	.800
711309	1.500	1.000
712009	3.000	.800
712809	2.500	.800
710110	999.000	999.000
710510	2.000	1.000
711210	2.000	.800
712010	2.000	.800
712710	2.500	.800
710111	1.500	1.000
710811	1.800	.800
711511	2.000	.800
710612	4.000	.800
711012	999.000	999.000
711412	3.000	.600
712412	3.500	.600
720101	2.000	.800
720301	1.500	.800
721101	1.500	.800
721801	999.000	999.000
722301	1.000	.800
722601	2.800	.800
720202	1.500	.800
720902	1.500	999.000
721602	1.500	.800
722402	1.500	1.000
720103	1.500	.800
720803	1.500	.800
721703	2.500	.600
722203	1.500	.800
723003	1.500	.800
720604	1.500	1.000
721304	1.800	1.000
722004	2.500	1.000
722604	3.200	2.000
720305	1.200	1.000
721005	1.500	.800
721705	1.000	.800
722505	1.000	999.000
722905	.800	.800
720806	2.800	999.000
721506	2.820	999.000

DATE	SILICA	SALINITY
722206	2.700	999.000
722806	2.200	999.000
720407	.750	1.800
721307	2.000	999.000
722007	2.100	999.000
722607	2.320	999.000
720308	2.000	999.000
721008	2.400	999.000
721708	999.000	999.000
722408	999.000	999.000
723108	.000	999.000
720709	5.000	999.000
721509	5.400	999.000
721809	6.000	999.000
722509	6.000	1.000
720210	5.600	1.080
720910	6.000	1.000
721610	4.300	999.080
722310	4.800	999.000
723010	5.000	.000
720611	5.200	.000
721311	4.600	.000
722011	5.400	.000
722711	4.800	.000
720412	5.000	.000
721112	4.700	.000
721712	999.000	.000
722612	999.000	.000
730101	6.000	.000
730901	5.640	.000
731501	6.400	.000
732201	4.400	.000
730202	4.550	.000
730502	4.500	.000
731202	5.400	.000
731902	5.100	.000
732602	4.720	.000
730503	4.800	.000
731203	4.400	.000
732303	5.600	.080
733003	5.280	.000
730404	5.400	.000
731104	5.400	.000
731604	4.400	.000
732304	3.800	.000
733004	4.600	.000
730705	3.800	.000
731405	4.200	.000
732205	3.200	.000
732905	4.000	.000
730406	4.000	.000
731106	5.000	.000

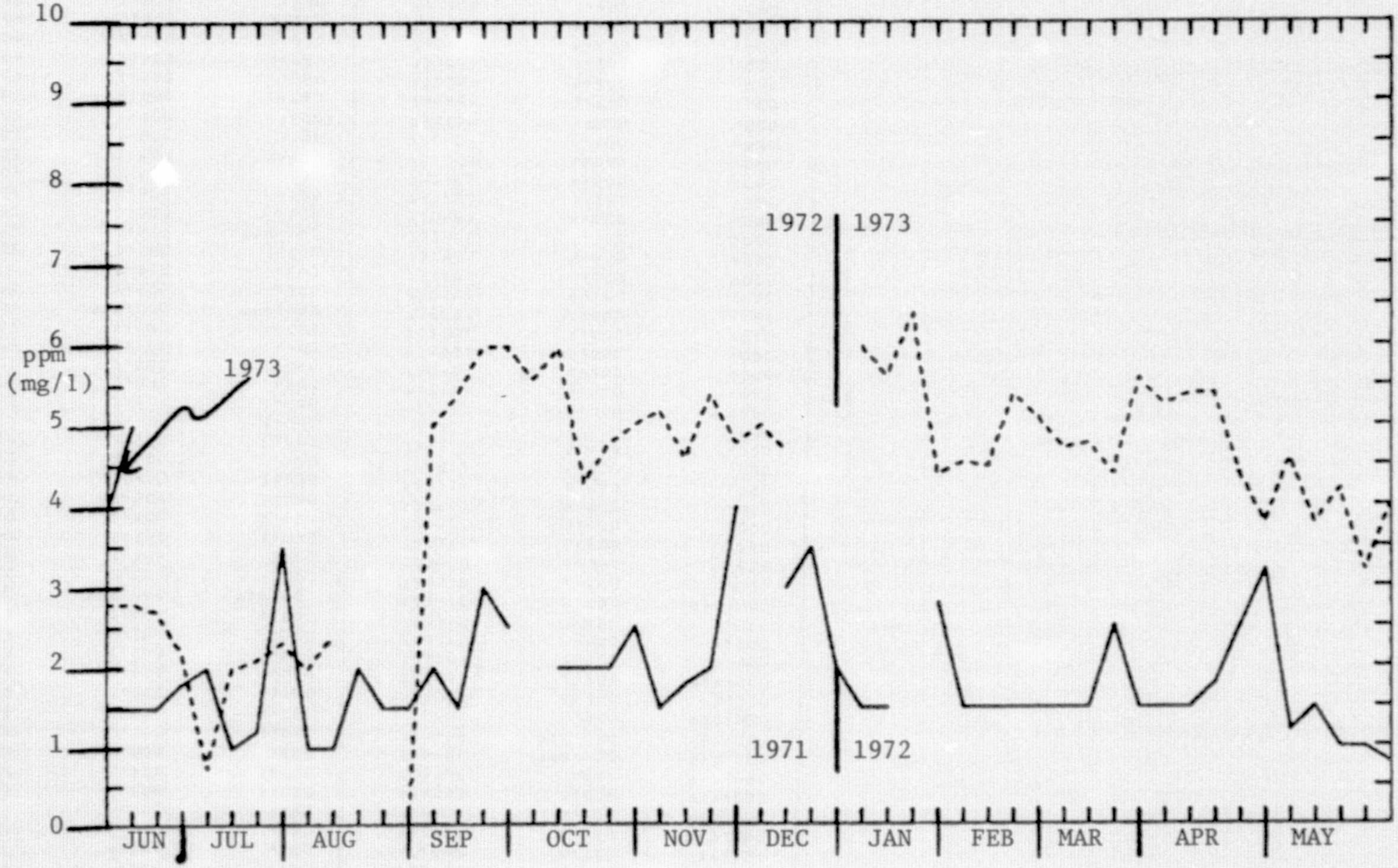

FIGURE 151. WEEKLY SILICA OF WHITACKER FROM JUNE 7, 1971 TO JUNE 11, 1973.

MIRROR LAKE

DATE	SILICA	SALINITY
710706	1.000	2.000
711406	1.000	1.600
712106	2.000	.800
712806	.500	.800
710407	4.000	.800
711207	1.200	.800
711907	1.000	.800
712607	3.000	1.000
710208	1.500	1.000
710908	1.000	.800
711608	1.800	1.000
712308	1.500	1.000
713008	2.500	1.000
710609	1.500	1.000
711309	1.500	.800
712009	3.000	.800
712809	2.000	1.000
710110	999.000	999.000
710510	3.000	1.000
711210	3.500	.800
712010	3.200	1.000
712710	1.800	1.000
710111	2.500	1.000
710811	1.800	1.000
711511	2.500	.800
710612	3.500	.800
711012	999.000	999.000
711412	3.000	.600
712412	3.000	.600
720101	2.000	1.000
720301	3.500	.800
721101	1.500	1.000
721801	999.000	999.000
722301	2.500	.800
722601	2.000	.800
720202	1.500	1.000
720902	1.000	999.000
721602	3.500	.800
722402	1.500	.800
720103	1.500	1.000
720803	1.500	.800
721703	2.000	.400
722203	1.700	1.200
723003	2.500	1.000
720604	1.500	1.000
721304	1.500	2.800
722004	2.500	1.000
722604	2.500	2.000
720305	1.500	.800
721005	1.500	1.000
721705	1.200	.600
722505	.700	999.000
722905	1.200	1.200
720806	3.000	999.000
721506	2.800	999.000
722206	3.300	999.000
722806	3.000	999.000
720407	1.000	1.000
721307	2.450	999.000
722007	2.750	999.000
722607	2.700	999.000
720308	3.120	999.000
721008	3.000	999.000
721708	.000	999.000
722408	999.000	999.000
723108	999.000	999.000
720709	5.200	999.000
721509	6.200	1.000
721809	6.200	999.000
722509	6.000	.800
720210	7.500	1.000
720910	7.600	1.000
721610	5.200	999.000
722310	6.440	.000
723010	6.300	.000
720611	6.600	.000
721311	5.600	.000
722011	5.800	.000
722711	6.400	.000
720412	5.000	.000
721112	5.400	.000
721712	4.800	.000
722612	999.000	.000
730101	6.400	.000
730901	6.200	.000
731501	5.600	.000
732201	4.800	.000
730202	4.600	.000
730502	4.100	.000
731202	5.680	.000
731902	4.840	.000
732602	4.800	.000
730503	4.600	.000
731203	3.320	.000
732303	4.800	.000
733003	5.000	.000
730404	4.600	.000
731104	4.000	.000
731604	3.920	.000
732304	4.200	.000
733004	4.200	.000
730705	4.600	.000
731405	4.600	.000
732205	3.600	.000
732905	3.800	.000
730406	4.360	.000
731106	5.000	.000

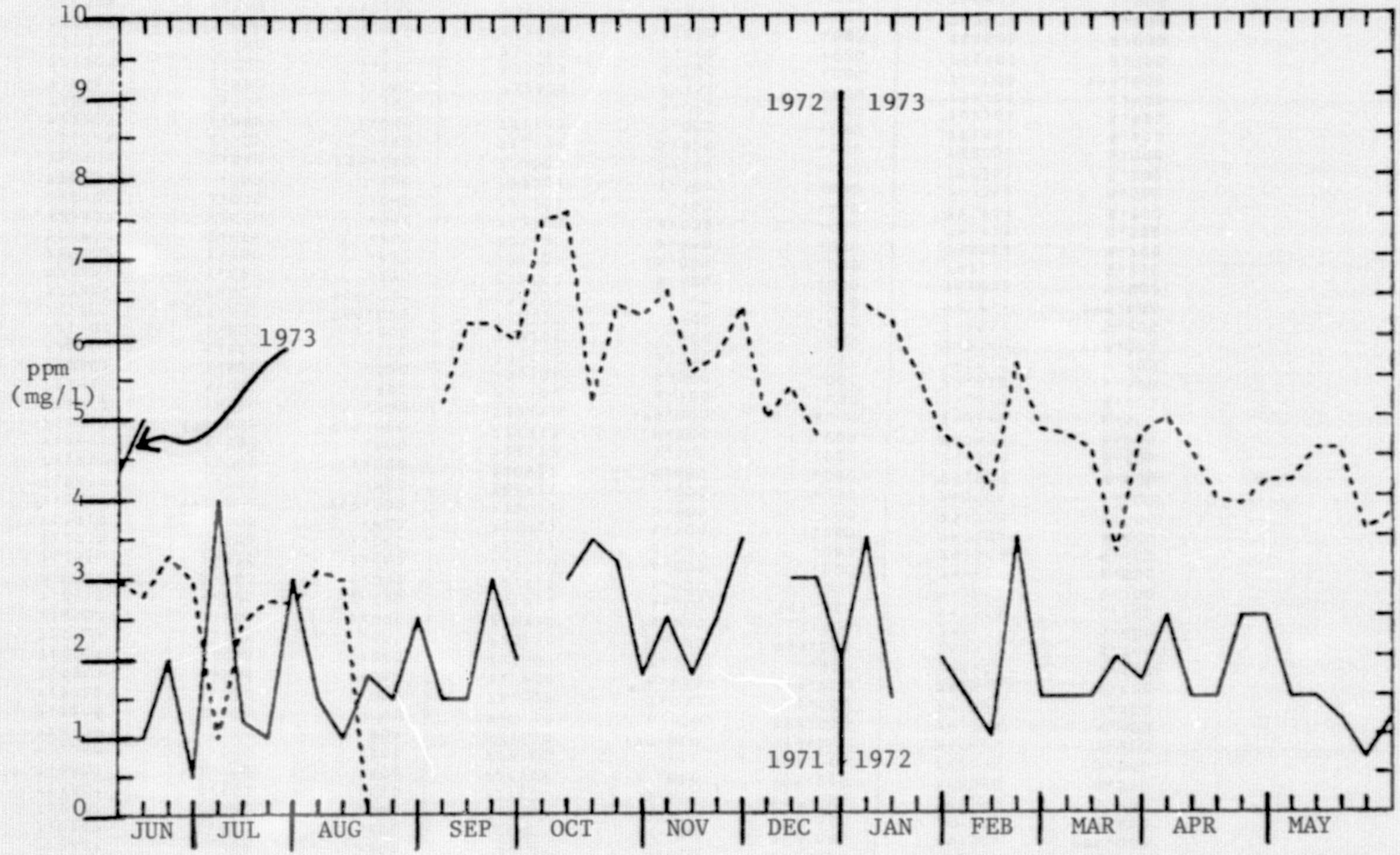

FIGURE 152. WEEKLY SILICA OF MIRROR LAKE FROM JUNE 7, 1971 to JUNE 11, 1973.

WHITESBURG BOAT DOCK

DATE	Silica	Salinity
71060-	999.000	999.000
711106	1.500	1.200
711806	4.000	1.200
712506	1.000	.800
710207	3.000	.800
710907	1.500	.800
711607	2.000	.800
712307	1.500	1.000
713007	1.500	.800
710608	1.000	.800
711308	1.500	.800
712008	1.500	1.000
712708	1.800	1.000
710209	1.500	1.000
711009	2.000	1.000
711709	3.000	.800
712409	3.000	1.000
710110	4.000	1.000
710810	3.000	1.000
711510	2.000	1.000
712210	3.500	1.000
712910	1.000	.800
710311	999.000	999.000
710811	1.900	.800
711211	1.000	1.000
710612	3.000	.800
711012	999.000	999.000
711412	3.500	.400
712412	4.000	.800
720101	1.500	.800
720301	1.500	.800
721101	1.500	1.000
721801	999.000	999.000
722301	999.000	999.000
722601	1.800	.800
720202	1.200	.800
720902	2.000	.800
721602	2.000	.800
722402	2.000	1.000
720103	.750	.800
720803	1.800	999.000
721703	2.500	.600
722203	1.800	1.000
723003	2.800	1.600
720604	2.500	1.000
721304	2.000	1.000
722004	1.500	1.800
722604	3.000	1.000
720305	1.100	999.000
721005	1.500	1.000
721705	1.500	.800
722505	1.200	1.000
722905	1.000	999.000
720806	3.600	999.000
721506	3.600	999.000

DATE	SILICA	SANINITY
722206	4.300	999.000
722806	4.800	999.000
720407	3.000	1.800
721307	4.300	999.000
722007	4.500	999.000
722607	4.600	999.000
720308	4.400	999.000
721008	5.600	999.000
721708	.000	999.000
722408	.000	999.000
723108	999.000	999.000
720709	6.400	999.000
721509	7.000	1.000
721809	5.600	999.000
722509	7.000	.800
720210	7.200	999.000
720910	6.500	.800
721610	6.000	999.000
722310	6.400	.000
723010	6.800	.000
720611	6.000	.000
721311	5.500	.000
722011	6.000	.000
722711	6.000	.000
720412	4.600	.000
721112	1.300	.000
721712	4.500	.000
722612	999.000	.000
730101	6.700	.000
730901	6.500	.000
731501	5.000	.000
732201	4.500	.000
730202	4.800	.000
730502	5.600	.000
731202	5.600	.000
731902	5.000	.000
732602	6.440	.000
730503	6.000	.000
731203	.950	.000
732303	1.200	.000
733003	5.560	.000
730404	5.800	.000
731104	7.000	.000
731604	6.200	.000
732304	6.160	.000
733004	6.000	.000
730705	6.200	.000
731405	5.200	.000
732205	5.000	.000
732905	4.920	.000
730406	5.520	.000
731106	5.800	.000

WHITESBURG BOAT DOCK

DATE	Silica
742603	999.000
740204	5.560
740904	999.000
741604	999.000
742304	5.600
743004	999.000
740605	7.600
741305	5.000
742005	5.560
742705	5.000
740406	5.200
741106	4.800
741806	4.400
742506	4.800
740207	5.120
740907	5.400
741607	4.800
742307	5.700
743007	5.700
740607	6.000
741308	5.600
742208	6.800
742708	6.000
740409	7.000
741009	5.600
741709	6.800
742409	5.600
740110	5.600
740810	4.800
741510	5.800
742410	5.400
743010	999.000
740511	5.200
741211	999.000
742011	5.000
742611	5.300
740712	4.200
741112	4.500
741712	5.200
742312	4.000
750201	5.200
750801	5.000
751401	5.600
752101	5.920
752801	6.400
750402	999.000
751402	5.200
752002	4.000
752502	2.600
750403	6.300
751103	999.000
751803	5.000
752503	4.400
750104	3.300
750704	4.400
751504	5.480
752204	4.640
750105	5.400
750805	2.800
751605	4.000
752405	4.800
752805	3.500

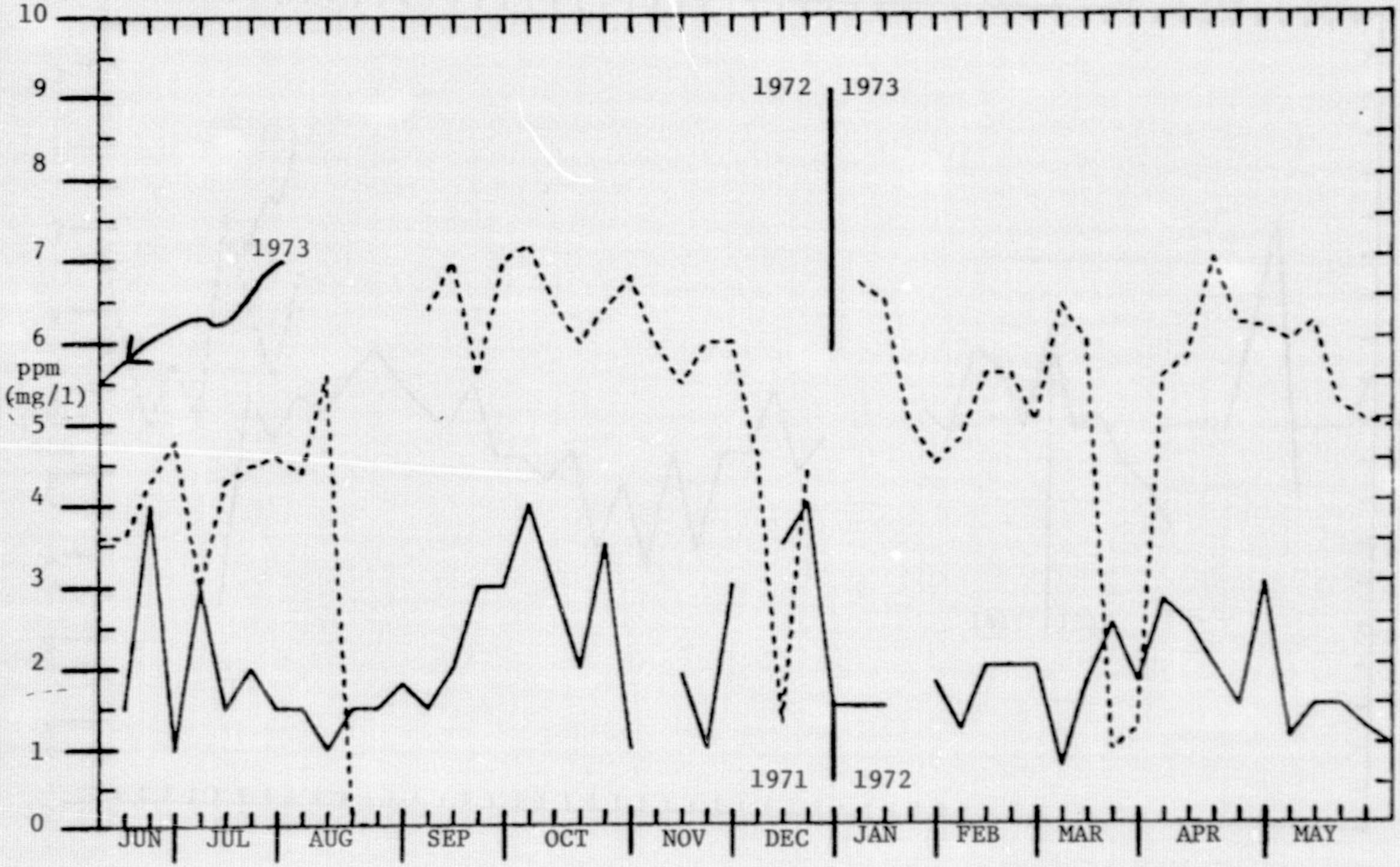

FIGURE 153. WEEKLY SILICA OF WHITESBURG FROM JUNE 6, 1971 TO JUNE 15, 1973.

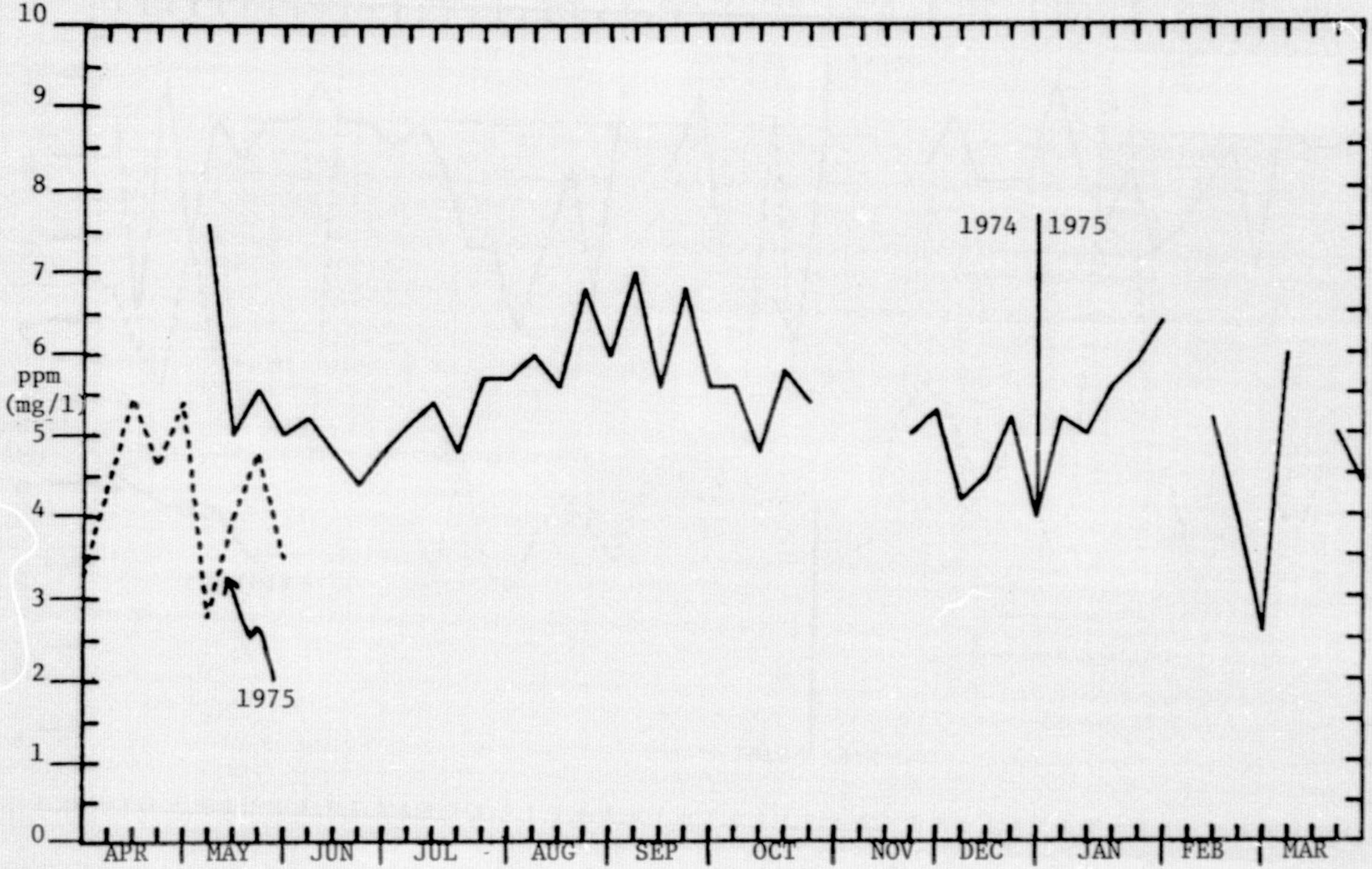

FIGURE 154. WEEKLY SILICA OF WHITESBURG FROM MARCH 26, 1974 TO MAY 28, 1975.

WHEELER-DECATUR

DATE	SILICA	SALINITY
710606	999.000	999.000
710906	1.500	1.500
711606	1.500	1.000
712306	3.000	.400
713006	1.800	.800
710707	3.500	1.000
711407	2.000	.800
712107	1.500	1.000
712807	1.500	.800
710408	1.500	.800
711108	2.500	.800
711808	2.000	.800
712508	1.500	1.000
710109	1.500	.800
710809	2.000	.800
711709	1.500	.800
712309	2.000	1.000
712909	3.000	1.000
710610	1.500	1.000
711310	1.000	1.000
712010	1.800	1.000
712710	1.000	1.000
710311	1.500	1.000
711011	1.000	.800
711711	1.800	1.000
710712	3.000	.800
711012	999.000	999.000
711412	999.000	999.000
712412	2.000	.600
713112	888.000	.800
720401	1.000	.800
721201	1.500	1.000
721801	1.500	1.000
722401	1.500	.800
723101	.000	.800
720202	999.000	999.000
720902	999.000	.800
721402	2.000	1.000
722202	2.000	.800
722802	999.000	.800
720603	2.000	.800
721303	1.500	.800
722003	1.800	.800
722803	2.500	2.000
720304	1.800	1.800
721304	2.500	1.800
721704	3.000	1.000
722404	1.500	1.000
720205	1.200	1.000
720805	1.000	1.000
721505	2.500	1.000
722405	1.800	1.000
723105	1.500	1.000
720606	2.000	1.000
721306	3.200	999.000

DATE	SILICA	SALINITY
722006	3.500	999.000
722706	3.800	999.000
720607	1.500	1.000
721207	4.500	999.000
721807	3.900	999.000
722507	4.900	999.000
720108	5.100	999.000
720808	5.400	999.000
721508	5.600	999.000
722208	999.000	999.000
722908	999.000	999.000
720509	999.000	999.000
721309	7.000	1.000
722009	6.800	.800
722709	7.400	1.000
720410	7.600	999.000
721110	6.800	1.000
722010	6.000	999.000
722510	6.200	.800
720311	5.800	999.000
721011	6.000	999.000
721511	6.000	.000
722211	6.000	.000
722911	6.400	.000
720612	5.800	.000
721312	5.360	.000
722112	3.200	.000
722912	5.500	.000
730501	6.080	.000
731001	4.200	.000
731901	4.500	.000
732401	999.000	.000
733101	7.600	.000
730802	4.800	.000
731602	4.700	.000
732202	6.000	.000
732602	999.000	.000
730103	3.700	.000
730903	4.000	.000
732803	3.400	.000
733003	999.000	.000
730604	6.200	.000
731304	5.800	.000
731804	6.320	.000
732704	5.320	.000
730405	5.000	.000
731105	5.400	.000
731805	4.400	.000
732505	5.000	.000
730106	6.000	.000
730806	5.400	.000
731506	5.680	.000

WHEELER-DECATUR

DATE	SILICA
742703	6.000
740304	999.000
741004	4.000
741704	4.880
742404	5.000
740105	4.800
740805	5.000
741505	999.000
742205	7.600
742905	4.800
740506	5.000
741206	4.800
741906	4.200
742606	4.800
740307	999.000
741007	5.520
741707	5.200
742407	5.400
743107	6.000
740708	5.600
741408	6.200
742108	6.000
742808	6.400
740409	6.000
741109	5.800
741809	6.200
742509	6.400
740210	6.000
740910	6.000
741610	6.000
742310	6.400
743010	5.600
740611	5.200
741311	4.600
742011	5.000
742711	4.200
740612	5.000
741112	5.000
741812	5.160
742412	999.000
743112	4.000
750801	5.200
751501	5.360
752401	6.400
752901	6.000
750702	6.800
751202	6.600
751902	5.600
752502	5.400
750503	5.400
751203	999.000
751903	5.200
752603	4.600
750204	4.800
750904	4.400
751604	4.600
752304	5.200
753004	4.900
750705	2.720
751405	3.800
752405	4.200
752805	4.100

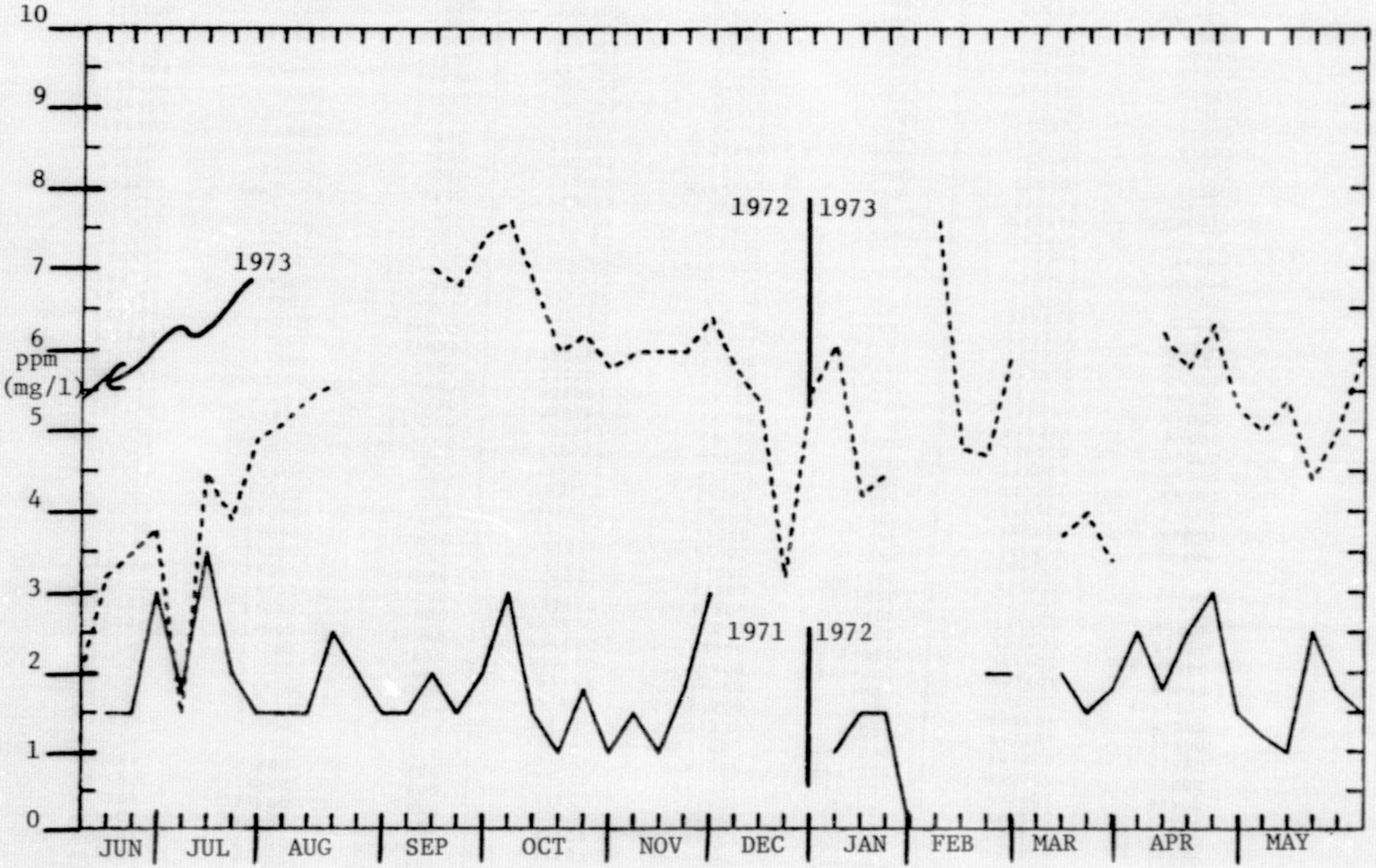

FIGURE 155. WEEKLY SILICA OF WHEELER FROM JUNE 6, 1971 TO JUNE 15, 1973.

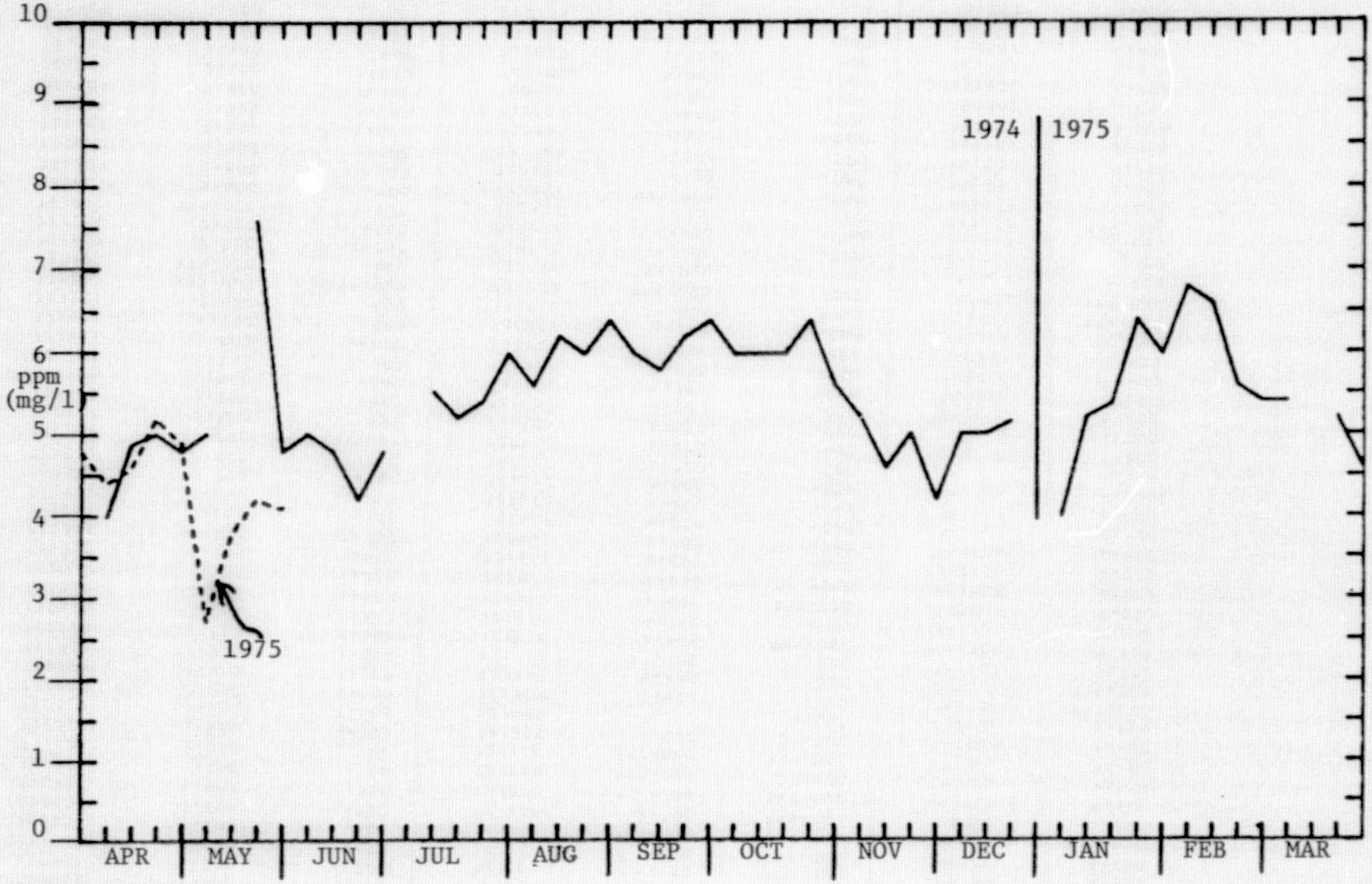

FIGURE 156. WEEKLY SILICA OF WHEELER FROM MARCH 27, 1974 TO MAY 28, 1975.

BROWNS FERRY

DATE	SILICA	SALINITY
710606	999.000	999.000
710906	2.000	1.200
711606	3.000	1.500
712306	1.500	.200
713006	1.500	.800
710707	1.500	1.000
711407	1.500	.800
712107	1.500	.800
712807	1.500	.800
710408	1.000	.800
711108	.250	.800
711808	2.000	1.000
712508	1.500	1.000
710109	1.800	1.000
710809	2.000	1.000
711709	3.000	1.000
712409	2.000	1.000
712909	2.500	1.000
710610	3.000	.800
711310	3.000	1.000
712010	.800	1.000
712710	1.500	.800
710311	1.500	1.000
711011	2.000	.800
711711	2.000	1.000
710712	3.000	.400
711012	999.000	999.000
711412	999.000	999.000
712412	3.500	.600
713112	1.200	.800
720401	.500	.800
721201	1.500	1.000
721801	1.500	1.000
722401	1.000	1.000
723101	2.000	.800
720202	999.000	999.000
720902	999.000	.800
721402	2.500	1.000
722202	2.000	.800
722802	999.000	1.000
720603	2.000	.800
721303	1.800	.800
722003	1.500	.800
722803	1.500	2.000
720304	1.500	1.800
721304	2.800	1.800
721704	2.500	1.000
722404	2.500	.800
720205	1.200	.800
720805	1.000	1.000
721505	1.500	.800
722405	1.800	.800
723105	1.500	1.000
720606	1.500	999.000
721306	3.500	999.000

DATE	SILICA	SALINITY
722006	3.500	999.000
722706	3.750	999.000
720607	1.500	1.000
721207	4.000	999.000
721807	4.800	999.000
722507	4.900	999.000
720108	5.300	999.000
720808	6.000	999.000
721508	5.700	999.000
722208	.000	999.000
722908	999.000	1.000
720509	999.000	999.000
721309	8.000	999.000
722009	7.000	1.000
722709	7.000	.800
720410	6.600	1.000
721110	7.200	1.000
722010	6.400	999.000
722510	6.240	1.000
720311	6.000	999.000
721011	6.200	.000
721511	5.800	.000
722211	6.400	.000
722911	6.000	.000
720612	4.800	.000
721312	4.800	.000
722112	5.700	.000
722912	5.800	.000
730501	6.000	.000
731001	4.800	.000
731901	4.700	.000
732401	5.000	.000
733101	7.600	.000
730802	5.100	.000
731602	4.000	.000
732202	999.000	.000
732602	999.000	.000
730103	4.100	.000
730903	4.600	.000
732803	3.600	.000
733003	999.000	.000
730604	6.320	.000
731304	6.000	.000
731804	6.520	.000
732704	5.680	.000
730405	5.200	.000
731105	5.000	.000
731805	3.400	.000
732505	999.000	.000
730106	3.900	.000
730806	5.400	.000
731506	5.600	.000

BROWNS FERRY

DATE	SILICA
742703	5.160
740304	999.000
741004	3.920
741704	5.000
742404	5.600
740105	3.800
740805	5.200
741505	999.000
742205	5.200
742905	4.600
740506	4.640
741206	4.400
741906	4.400
742606	4.800
740307	999.000
741007	999.000
741707	5.200
742407	4.800
743107	4.600
740708	6.000
741408	6.000
742108	6.100
742808	6.300
740409	6.400
741109	6.000
741809	6.000
742509	6.520
740210	5.800
740910	6.200
741610	5.600
742310	6.000
743010	5.400
740611	4.800
741311	5.200
742011	999.000
742711	999.000
740612	5.200
741112	5.200
741812	5.560
742412	999.000
743112	4.000
750801	4.800
751501	4.280
752401	6.000
752901	6.000
750702	6.000
751202	6.200
751902	3.800
752502	5.600
750503	5.640
751203	999.000
751903	999.000
752603	3.800
750204	3.900
750904	4.400
751604	4.800
752304	4.800
753004	999.000
750705	2.700
751405	4.900
752405	4.500
752805	3.800

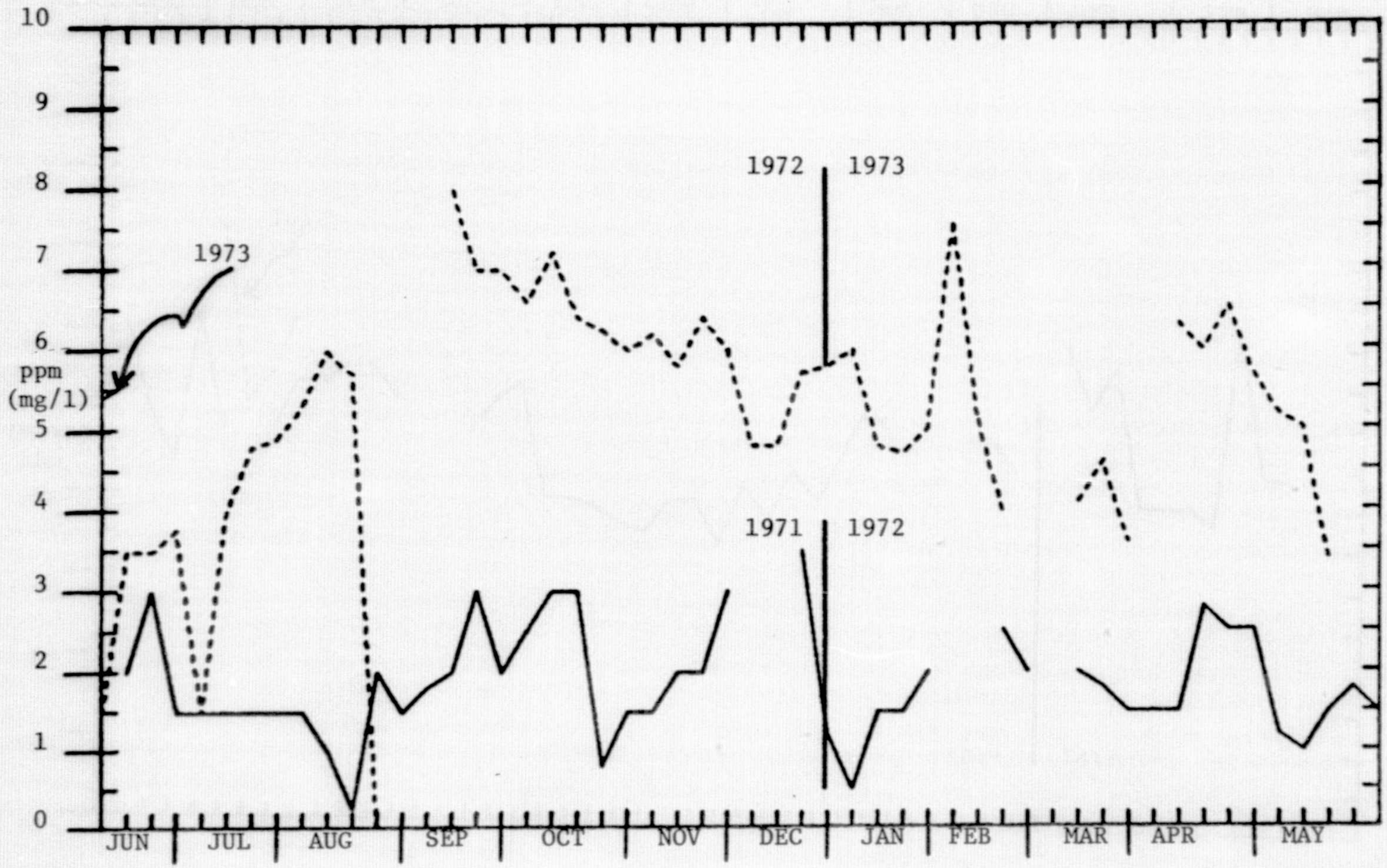

FIGURE 157. WEEKLY SILICA OF BROWNS FERRY FROM JUNE 6, 1971 TO JUNE 15, 1973.

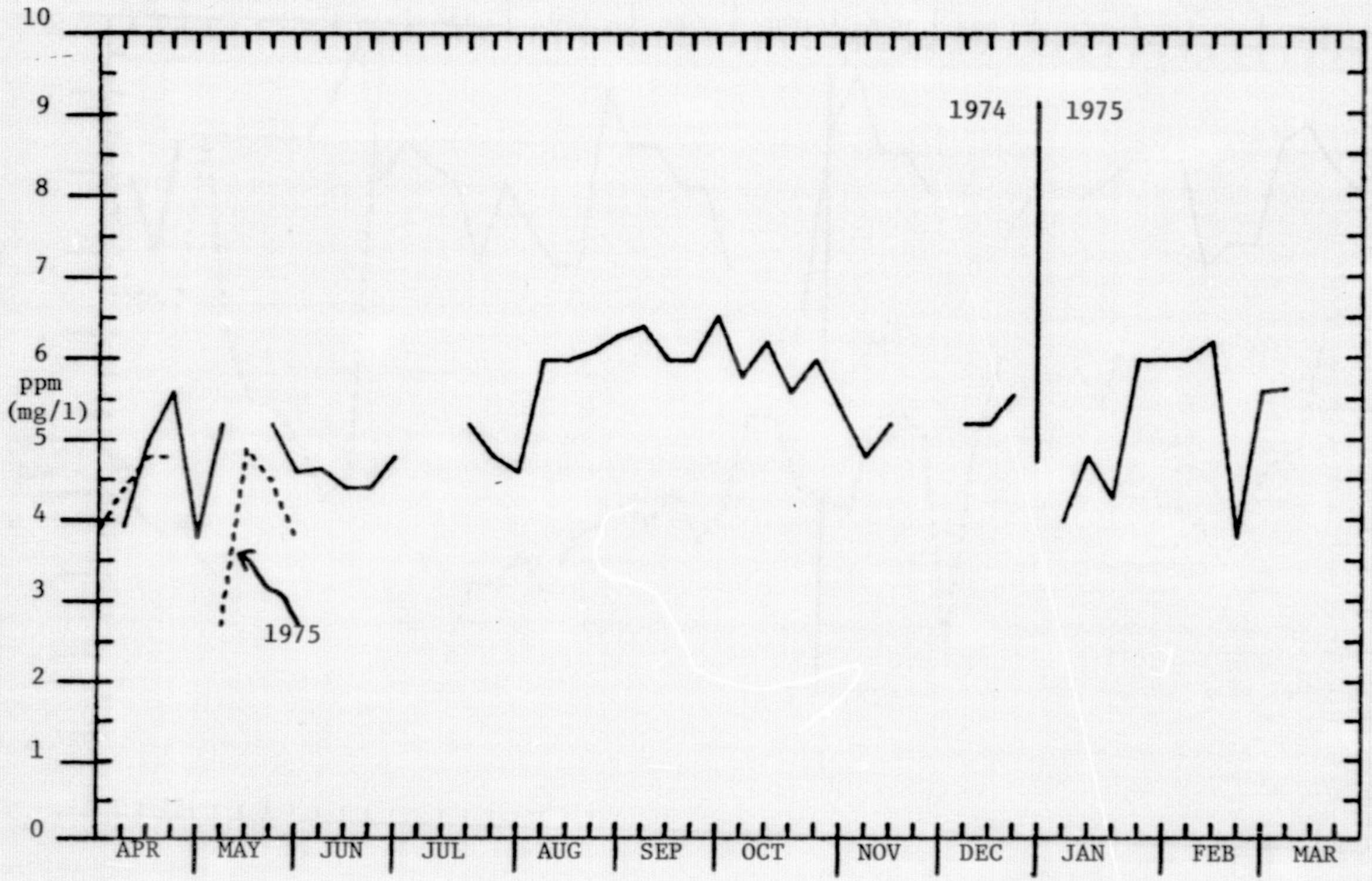

FIGURE 158. WEEKLY SILICA OF BROWNS FERRY FROM MARCH 27, 1974 TO MAY 28, 1975.

APPENDIX C

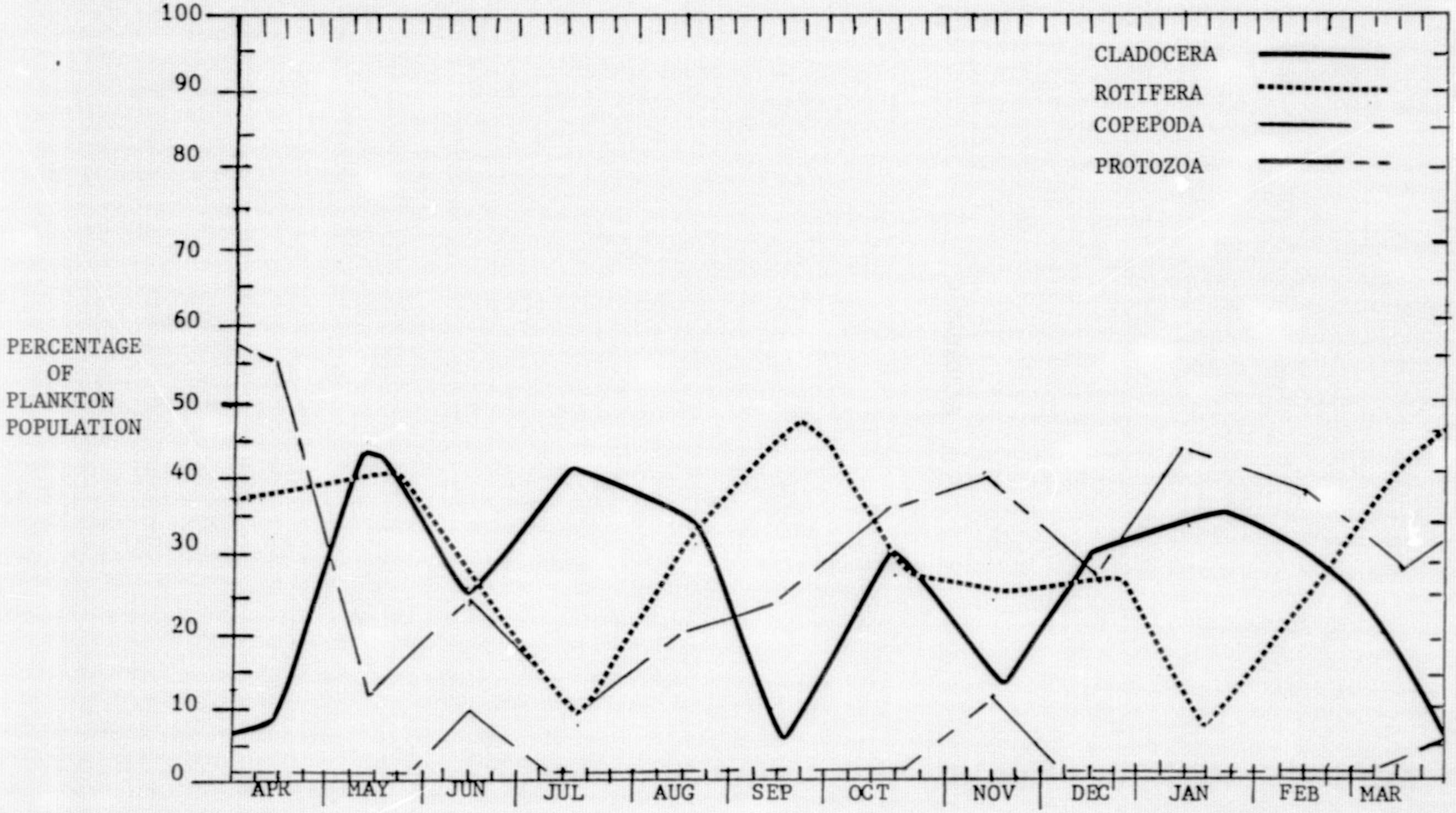

FIGURE 159. MONTHLY AVERAGE PERCENTAGE OF MAJOR ORGANISM GROUPS FROM WHITAKER LAKE PLANKTON SAMPLES.

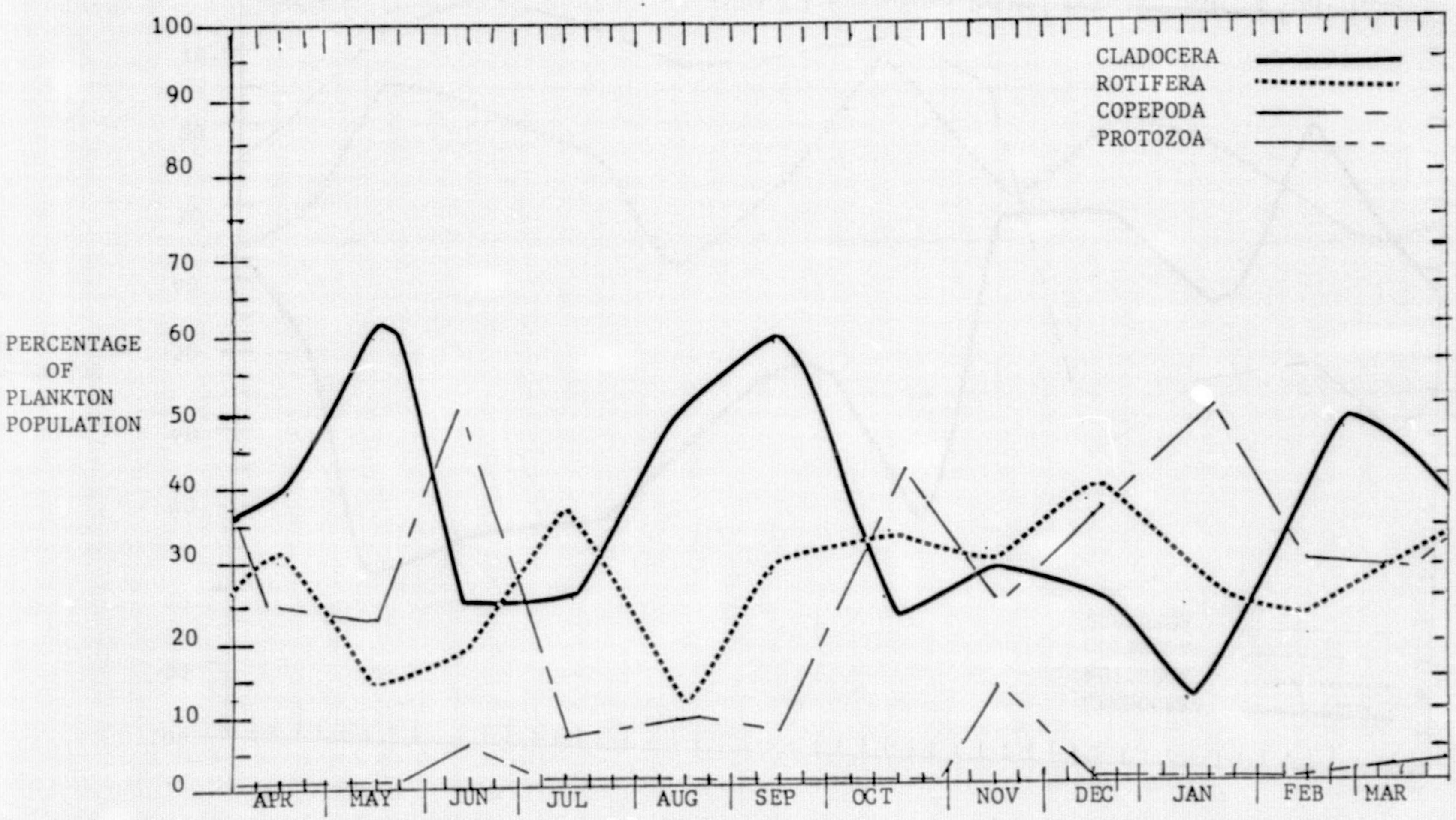

FIGURE 160. MONTHLY AVERAGE PERCENTAGE OF MAJOR ORGANISM GROUPS FROM MIRROR LAKE PLANKTON SAMPLES.

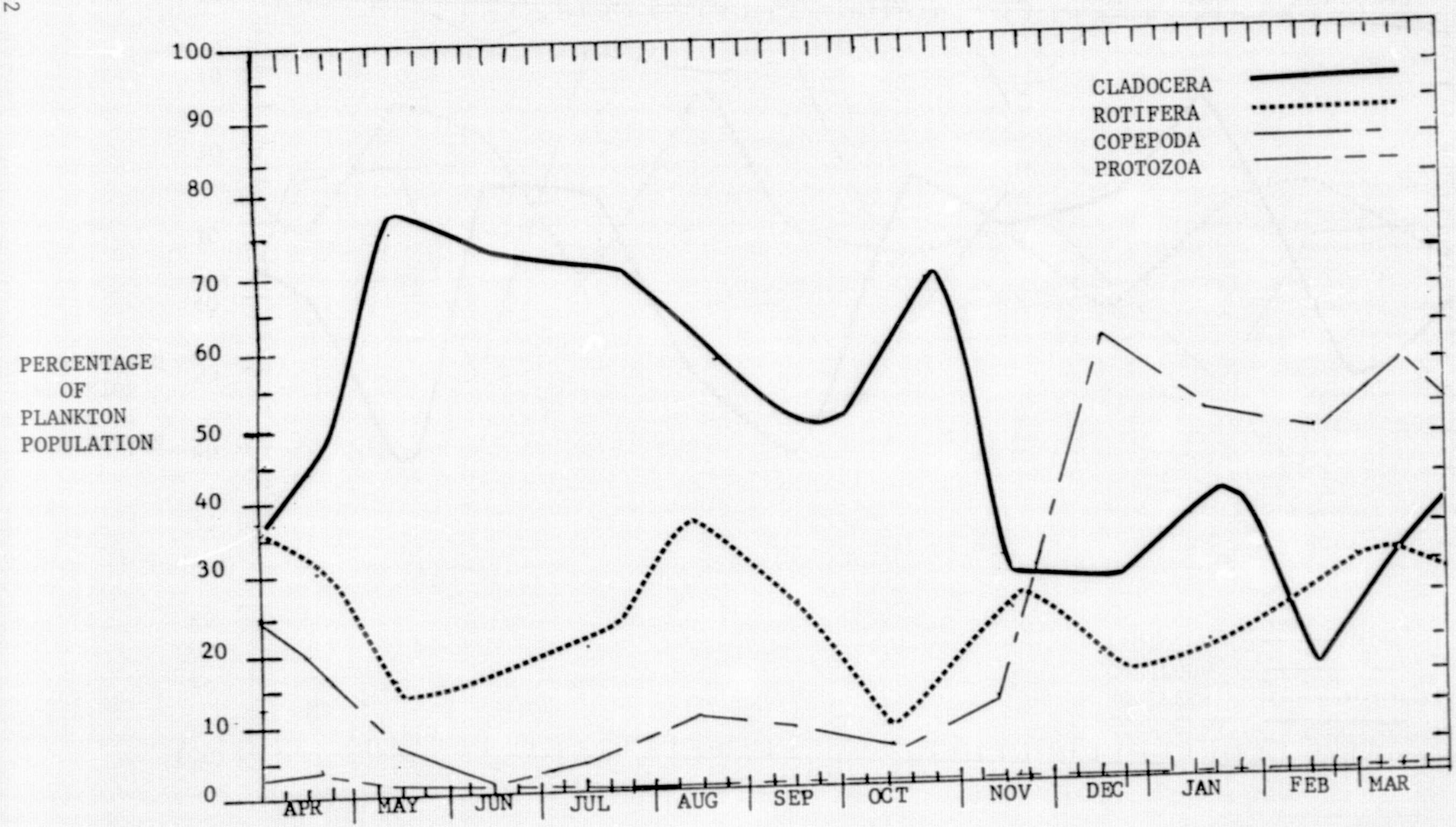

FIGURE 161. MONTHLY AVERAGE PERCENTAGE OF MAJOR ORGANISM GROUPS FROM WHITESBURG BOAT DOCK.

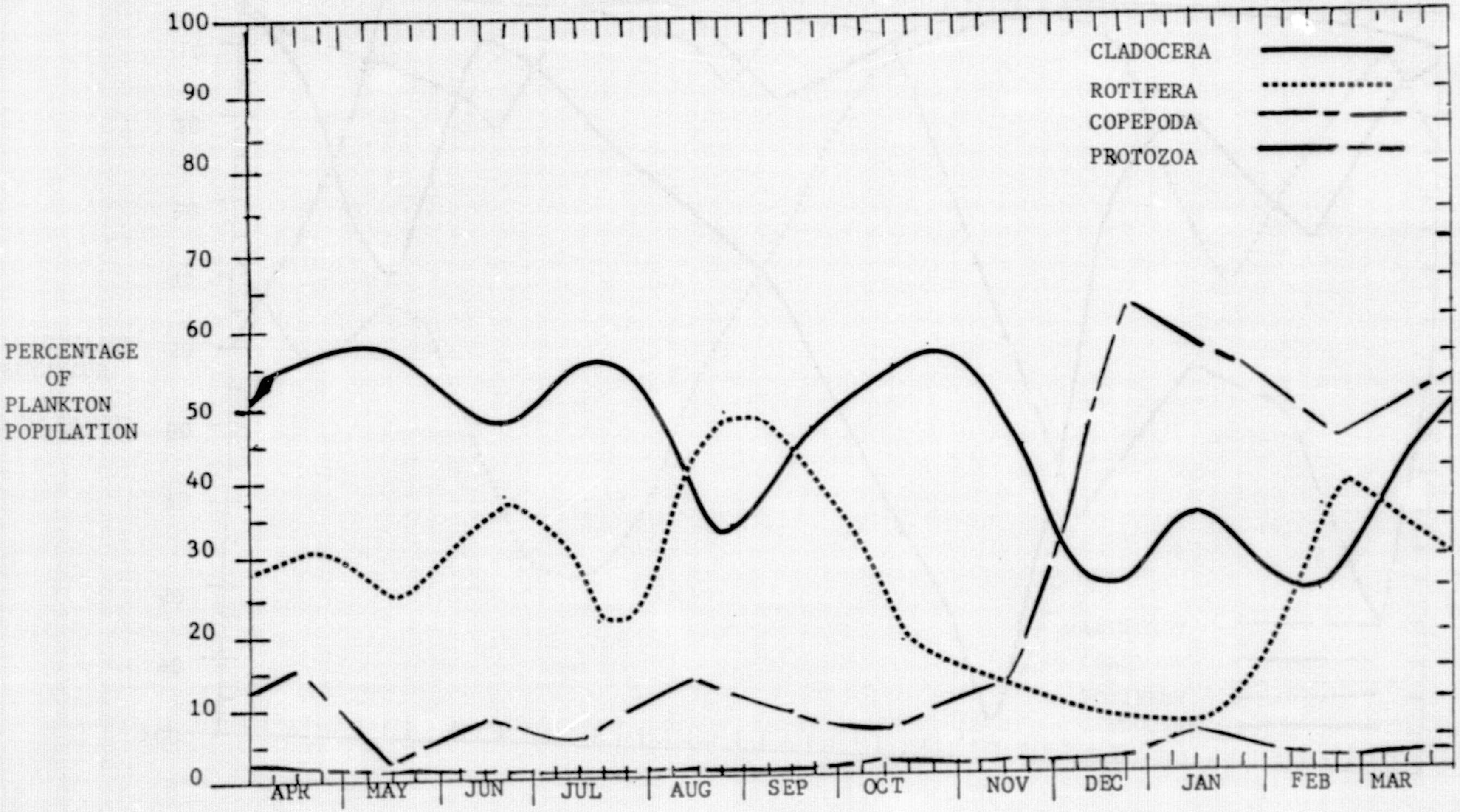

FIGURE 162. MONTHLY AVERAGE PERCENTAGE OF MAJOR ORGANISM GROUPS FROM WHEELER PLANKTON SAMPLES.

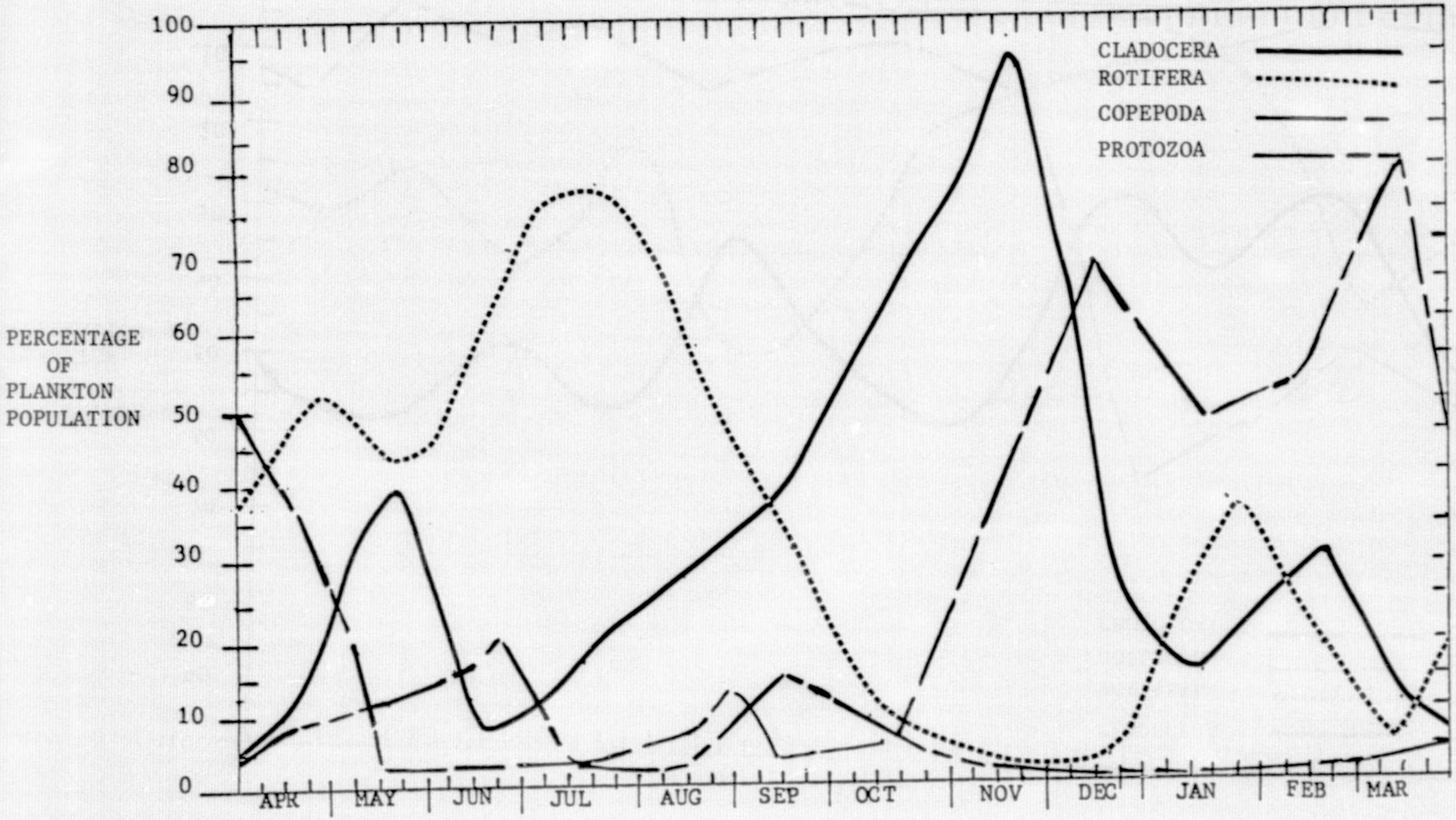

FIGURE 163. MONTHLY AVERAGE PERCENTAGE OF MAJOR ORGANISM GROUPS FROM BROWNS FERRY PLANKTON SAMPLES.

TABLE 13. ORGANISMS IDENTIFIED FROM PLANKTON SAMPLES OBTAINED FROM THE FIVE SITES IN THE TENNESSEE RIVER.

PROTOZOA

Flagellata
- *Euglena*
- *Peridinium*
- *Gymnodinium*
- *Ceratium*

Ciliata
- *Stentor*
- *Paradileptus*

CNIDERIA

Hydrozoa
- *Hydra*
- *Craspedacusta sowerbyi*

ROTIFERA

- *Trichocera*
- *Keratella*
- *Synchaeta*
- *Brachionus*
- *Conochilus*
- *Conochiloides*
- *Asplanchna*

ANNELIDA

Oligochaeta
- *Nais*

MOLLUSCA

Pelecypoda
- *Corbicula* (immature)

ARTHROPODA

Crustacea
- Cladocera
  - *Ceriod aphnia*
  - *Sida c rystallina*
  - *Scapholeberis kingii*
  - *Daphnia*
  - *Chydorus*
  - *Pleuroxus*
  - *Bosmina*
  - *Leptodora*
  - *Ilyocryptus*
  - *Diaphanosoma*
- Ostracoda
- Copepoda
  - Unidentified Nauplii
    - *Cyclops*
    - Harpacticoid Copepods
    - *Diaptomus*

Insecta
- Ephemeroptera
- Diptera

TABLE 14. NEKTONIC ORGANISMS IDENTIFIED FROM THE FIVE SITES IN THE TENNESSEE RIVER.

Fishes

- Petromyzontidae - Lamprey Family
  - Ichthyomyzon castaneus - chestnut lamprey
- Clupeidae - Herring Family
  - Dorosoma cepedianum - gizzard shad
- Cottidae - Sculpin Family
  - Cottus carolinae - banded sculpin
- Serranidae - Bass Family
  - Roccus chrysops - white bass
- Ictaluridae - Catfish Family
  - Ictalurus punctatus - channel catfish
  - Ictalurus furcatus - blue catfish
  - Ictalurus melas - black bullhead
- Cyprinidae - Carp Family
  - Cyprinus carpio - carp
- Catostomidae - Sucker Family
  - Ictiobus cyprinellus - bigmouth buffalo fish
  - Ictiobus bubalus - smallmouth buffalo fish
- Centrarchidae - Sunfish Family
  - Micropterus salmoides - largemouth bass
  - Lepomis cyanellus - green sunfish
  - Lepomis macrochirus - bluegill sunfish
  - Lepomis microlophus - redear sunfish
  - Pomoxis nigromaculatus - black crappie

Turtles

- Chelydridae
  - Chelydra serpentina - snapping turtle
- Kinosternidae
  - Stenothaerus odoratus - stinkpot turtle
- Emyidae
  - Graptemys geographica - map turtle
  - Chrysemys picta - painted turtle
  - Pseudemys scripta - pond slider

TABLE 15. BENTHIC ORGANISMS IDENTIFIED FROM THE FIVE SITES IN THE TENNESSEE RIVER.

Whitaker Lake

Summer Populations	Winter Populations
Desmids	
Staurastrum	Euastrum
Scenedesmus	*Closterium
*Pediastrum	
Cosmarium	
Closterium	
Diatoms	
*Cymbella	Cymbella
Gyrosigma	Navicula
Diatomella	*Fragilaria
Fragilaria	*Asterionella
Asterionella	Gyrosigma
Navicula	Synedra
	Gomphoneis
	Melosira
Green Algae	
Clorosarcina	Cladophora
Thamniochate	Spirogyra
*Cladophora	*Oedogonium
Yellow-Green Algae	
Tribonema	Tribonema
Blue-Green Algae	
Oscillatoria	Oscillatoria
Merismopedia	Anabena
Flagellates	
Peranema	*Euglena
Phacus	
Euglena	
Higher Plants	
Thypha	*Potamogeton
*Potamogeton	
Myriophyllum	
Najas	
Ciliates	
Colpoda	Vorticella
*Vorticella	Paramecium
Amphileptus	
Sarcodina	
Difflugia	Actinosphaerum
Actinosphaerium	
Turbellaria	
Dugesia	

*Most abundant groups.

TABLE 15. (Continued)

Gastrotricha	
Polymernous	
Rotifera	
Pleosoma	Notormata
Philodina	
Nematoda	
Oligochaeta	
Pentaneura	Nais
Nais	
Hirudinea	
Placobdella	Placobdella
Pelecypoda	
Anodonta	Unio
Unio	Corbicula
*Corbicula	
Gastropod	
Pleurocera	Pleurocera
	Physa
Crustacea	
Orconectes	Gammarus
Gammarus	Sida
Sida	Orconectes
Physocyprius	
Insecta	
Odonata nymph-Helocordielia	Tendipes
*Diptera larvae - Tendipes	
Ephemeroptera numph - Stenonema	
Bryozoa	
Frederacella	Frederacella
Pectinatella	Pectinatella

Mirror Lake

Summer Populations	Winter Populations
Desmids	
*Cosmarium	
Pediastrum	
Scendesmus	
Staurastrum	
Diatoms	
Cymbella	Cymbella
*Navicula	Gomphonema
Fragilaria	Frustulia
Gyrosigma	Navicula
Asterionella	Ankistrodesmus
*Synedra	Diatomella
	Asterionella

TABLE 15. (Continued)

Green Algae	
Cladophora (on rocks)	Cladophora (on rocks)
Chlorella	
Yellow-Green Algae	
	Tribonema
Blue-Green Algae	
Merismopedia	Merismopedia
	Oscillatoria
	Anabaena
Flagellates	
Paranema	Euglena
Euglena	
Higher Plants	
*Myriophyllum	
Thypha	
Potamogeton	
Najas	
Ciliates	
Vorticella (on rocks)	
Sarcodina	
Difflugia	Amoeba
Amoeba	
Turbellaria	
Dugesia	
Rotifera	
Diplois	
Asplarchnia	
Platyras	
Rotaria	
Nematoda	
Oligochaeta	
Nais	Stylaria
Pelecypoda	
Unio	Unio
Anodonta	Anodonta
Corbicula	Corbicula
Gastropod	
*Pleurocera	
Physa	
Crustacea	
Gammarus	Gammarus
Insecta	
Tendipides	Tendipides
Midge larva - Prodiamesa	
Steronema	
Bryozoa	
Pectinatella	Frederacella

TABLE 15. (Continued)

Whitesburg Boat Dock - (all attached to dock or branches in water)

Summer Population	Winter Population
Desmids	
Closterium	Closterium
Cosmarium	
Diatoma	
Cymbella	Cymbella
*Navicula	Gyrosigma
	Gomphonema
	Navicula
Green Algae	
Cladophera	Oedogonium
Yellow-Green Algae	
Tribonema	Tribonema
Blue-Green Algae	
Oscillatoria	Oscillatoria
Merismopedia	Anabaena
Ciliates	
Colpoda	Loxyphylium
Spirostrnum	Colpoda
Erchelyodon	
Sarcodina	
Actinophys	
Hydrozoa	
Hydra	
Gastrotricha	
Chaetonotus	
Rotifera	
Rotaria	
Nematoda	
Oligochaeta	
Dero	
Nais	

Wheeler-Decatur Boat Harbor

Summer Population	Winter Population
Desmids	
Cosmarium	
Diatoms	
Navicula	Navicula
Asterionella	Synedra
*Cocconeis	Frustulia
Cymbella	Diatomella
	Gyrosigma

TABLE 15. (Continued)

Green Algae	
Oedogonium	Oedogonium
*Cladophora	*Cladophora
Spirogyra	
Yellow-Green Algae	
	Tribonema
Blue-Green Algae	
Lyngbya	*Oscillatoria
Merismopedia	
Oscillatoria	
Sarcodina	
Amoeba	Amoeba
Difflugia	
Podophyra	
Ciliates	
Vorticella	Spirostomum
Colpoda	
Spirostomum	
Nematoda	
Rotifera	
Notomata	Notomata
Colurella	Euchlaris
Rotaria	
Oligochaeta	
Nais	Nais
Pelecypoda	
Corbicula	Corbicula
Gastropoda	
*Physa	*Physa
Pleurocera	
Insecta	
Diptera larvae	

Browns Ferry

Summer Population	Winter Population
Desmids	
Cosmarium	
*Closterium	
Diatoms	
Frustulia	Nitzschia
Diatomella	Gyrosigma
Stauroneis	Frustulia
Cymbella	Amphineura
Gyrosigma	
Melosira	
Asterionella	
Scenedesmus	

TABLE 15. (Continued)

Green Algae	
Chlorococcus	*Cladophora
Oedogonium	Champaesiphon
Yellow-Green Algae	
Tribonema	
Blue-Green Algae	
Oscillatoria	Oscillatoria
	Lyngbya
Ciliates	
Vorticella	Vorticella
Dileptus	
Lionotus	
Colpoda	
Haltaria	
Flagellates	
Volvox	
Pandorina	
Peridinium	
Demospongia	
Spongilla	Spongilla
Hydrozoa	
Hydra	
Turbellaria	
Dugesia	Dugesia
Nematoda	
Rotifera	
Notomata	
Rotaria	
Oligochaeta	
Nais	
Hirudinea	
Placobdella	
Pelecypoda	
Corbicula	Corbicula
Unio	
Gastropoda	
Pleurocera	Pleurocera
Crustacea	
Orconectes	Gammarus
Gammarus	Orconectes
Cambarus	Cambarus
Insecta	
Stenonema	Odonata nymphs
Diptera larvae	
Odonata larvae - Argia	
Bryozoa	
Pectinatella	Frederacella
Frederacella	

TABLE 16. TROPHIC LEVELS OF ORGANISMS FROM THE FIVE SITES IN THE TENNESSEE RIVER

Producers - Organisms converting light energy into chemical energy.
- Desmids
- Diatoms
- Green algae
- Bluegreen algae
- Yellow algae
- Vascular plants

Consumer Level I - Organisms feeding on Producers for energy (herbivoures).
- Phytoplankton feeders
  - Ciliate Protozoans
  - Sponges
  - Rotifers
  - Bryozoans
  - Cladocerans
  - Copepods
  - Clams
  - Snails
- Young Fish
  - Gizzard shad
- Plant feeders
  - Nematodes
  - Crayfish
  - Insect larvae
  - Snails
  - Ducks

Consumer Level II - Organisms feeding on Consumer Level I and Producers (carnivoures and omnivoures).
- Hydra
- Planaria
- Rotifers
- Nematodes
- Cladocerans
- Copepods
- Crayfish
- Insect larvae
- Juvenile fish
- Frogs
- Turtles
- Aquatic birds

Consumer Level III - Organisms feeding on Producers, Consumer I, and/or Consumer II (carnivoures and omnivoures).
- Larger fish
- Frogs
- Turtles
- Snakes
- Aquatic birds

TABLE 16. (Continued)

<u>Scavengers</u> - Feeders on dead or decaying organic matter from all trophic levels.

Protozoans
Planaria
Nematodes
Rotifers
Bryozoans
Oligochaets
Cladocerans
Copepods
Insect larvae
Amphipods
Clams

<u>Parasites</u> - Feeders on living organic organisms from higher trophic levels without killing them.

Leeches
Lamprey

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